

VICTORIA

Victorian
Auditor-General

Piping the System: Incorporating the Wimmera-Mallee Pipeline and the Goldfields Superpipe

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Victorian Auditor-General's Office
Auditing in the Public Interest

The Hon. Robert Smith MLC
President
Legislative Council
Parliament House
Melbourne

The Hon. Jenny Lindell MP
Speaker
Legislative Assembly
Parliament House
Melbourne

Dear Presiding Officers

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my report on
Piping the System.

Yours faithfully



DDR PEARSON
Auditor-General

28 May 2008

Foreword

The fundamentals of tendering in the public sector are well known. They include planning, consultation, the development of a business case, adequate competition and equal treatment of tenderers.

Circumstances, however, will sometimes arise where tendering needs to be fast-tracked and Victoria's water sector has seen several recent examples of this. As a result of the drought and abnormally low inflows into the state's water storages, there was a clear and present danger that communities would run out of drinking water.

In these extreme circumstances a number of steps were taken that ordinarily would be of significant concern such as converting a lump-sum contract into an alliance-style target cost contract. These and other expedients created additional risks for the relevant businesses.

Fortunately for the businesses, and the communities they serve, the risks were generally well managed, as were the projects themselves. Luck also played a role. Ultimately, the additional costs imposed by these steps did not undermine the achievement of value for money for the community.

Other tendering authorities should take heed from these experiences. Three lessons in particular have wider application to public sector tendering. Firstly, converting a lump-sum contract into an alliance, or vice versa, is not good practice. Secondly, when tendering authorities need to be aware that if project costs are likely to exceed the funding secured, they should promptly inform their funders. Thirdly, probity auditors should actively monitor communications with tenderers, attend tenderer meetings and verify that tender evaluations accurately reflect the information submitted by tenderers.



DDR PEARSON
Auditor-General

28 May 2008

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Wimmera-Mallee Pipeline

1

Executive summary

1.1 Introduction

The Wimmera-Mallee Pipeline project is Australia's largest water saving project. It is being funded by the Commonwealth Government, the State Government and the Grampians Wimmera-Mallee Water Authority (the Authority). On completion of the project in 2009, 17 500 km of open earthen channels will be replaced with an 8 800 km piped water distribution system. The new system of seven discrete supply systems will cover some 2.3 million hectares (10 per cent of Victoria) and provide water to approximately 2 500 rural customers, 35 000 urban customers and 36 towns in the region.

The Authority is responsible for the procurement and implementation of the project, and will manage the design and construction of the major trunk pipelines, water pumping stations, and water storages across six supply zones. The Authority is also responsible for the procurement of the distribution pipeline systems connected to the supply zone trunk mains.

The pipeline is projected to save 103 000 megalitres of water currently lost from the existing system. Forecast economic, social and environmental benefits for the region, include:

- secure, reliable and better quality water supplies to the farms, towns and businesses of the region
- providing up to 83 000 megalitres of water to help restore degraded waterways and wetlands in the region, and provide increased frequency of water flows to the region's nationally significant lake system
- providing up to 20 000 megalitres of additional water for regional economic development.

In 2006, with water storages at historical lows and the prospect that without significant rain local communities would run out of water, the Authority was in a difficult position. In order to secure supplies to meet customer needs, the Authority and its funding partners amended the project's proposed completion date from 2016 to 2011.

1.2 Key findings

The Authority established appropriate governance arrangements for the project and planned it well. The Authority adequately identified and assessed the alternatives available to meet the identified need, adequately supported the project with a comprehensive business case, consulted with the community and obtained the necessary approvals.

The audit identified a number of shortcomings with the procurement:

- While the Authority's Board and management were provided with general assurance by the probity auditor regarding the probity of the tender process, there was no specific assurance that all of the requirements of the probity plan were completed.
- Stage one of the project received a poor tender response and higher than expected tender prices. Efforts to address contractor preferences and the size of the bidder pool would likely have generated a better outcome.
- The Authority's decision to enter into an alliance agreement with a preferred tenderer, who was selected following a traditional fixed price tender process, was unwise.
- In moving to the alliance contract, the Authority reduced the tenderer's risk and increased its own risk, without obtaining a corresponding reduction in the tender price. This reduced value for money for the community.
- Contractor margins incorporated into the price for supply systems one and seven and for the supply system two trunk pipeline target cost contracts were high compared with average margins for the industry.
- By undertaking the system two trunk pipeline as an extension to the contract for the construction of systems one and seven, the Authority cannot be assured that it achieved the best price for this work.

Construction of the project has been well managed. The Authority's completion of the stage one trunk pipeline by October 2007, to secure town supplies and provide water to most rural customers during the 2007–08 summer, was a significant achievement.

However, the project is estimated to cost significantly more (\$248 million or 56 per cent) than was provided for in the project delivery agreement. The Authority should have formally notified the State Government sooner that the estimated cost of implementing the project was likely to increase.

The cost overruns have resulted in the need for the Authority to significantly increase its debt and the prices charged to its water customers. The proposed increase in debt creates a risk to the Authority's business.

The Authority's processes for the reimbursement of contractor costs under alliance contracts need to be more stringent to ensure payments are only made where goods and services are received and used appropriately, and the rates used for the reimbursement of contractor salaries are consistent with the contract agreements.

1.3 Key recommendations

The Grampians Wimmera-Mallee Water Authority should:

- comprehensively review its procurement arrangements to better align them with public sector principles and better practice (**Recommendation 4.2**)
- assess the reasonableness of costings in business cases supporting capital projects, before funding is sought (**Recommendation 3.1**)
- review its processes for reimbursing contractors under alliance agreements, to ensure payments are only made where goods and services are received and used on the project, and the labour rates paid are consistent with the contracts (**Recommendation 5.1**)
- commission independent audits of payments under all alliance contracts (**Recommendation 5.1**).

The Department of Treasury and Finance incorporate into its investment management material clear articulation that public sector agencies should:

- only enter into alliance procurement arrangements after assessing the appropriateness of these arrangements for the particular procurement exercise and assessing the suitability of an alliance partner, using the Department of Treasury and Finance's alliancing guidelines
- not tender for lump-sum contracts and then change the arrangements to alliance contracts
- when establishing alliance agreements, set contractor margins that are consistent with margins used for similar contracts in the relevant sector (**Recommendation 4.1**).

RESPONSE provided by the Managing Director, Grampians Wimmera-Mallee Water

GWMWater notes and welcomes the recommendations presented in the audit report. The recommendations will be presented to the Board of GWMWater for discussion at a future Board meeting once the audit findings are reported to the Victorian Parliament and are considered public information.

A range of further comments were also submitted by GWMWater. These are included in Appendix A along with further audit comment.

RESPONSE provided by the Secretary, Department of Sustainability and Environment

The Secretary of the Department of Sustainability and Environment has provided formal comments on aspects of this report. These are also included in Appendix A.

RESPONSE provided by the Secretary, Department of Treasury and Finance

DTF will review its investment management guidance material, with a view to incorporating clear articulation that public sector agencies should:

- *only enter into project alliance procurement arrangements after assessing the appropriateness of these arrangements for the particular procurement exercise and assessing the suitability of an alliance partner, using DTF's alliancing guidelines;*
- *not tender for lump-sum contracts and then change the arrangements to alliance contracts, or contracts with predominantly alliance features, after selection of a preferred proponent; and*
- *when establishing project alliance arrangements, set contractor margins that are consistent with margins used for similar contracts in the relevant sector.*

2 Background

2.1 Grampians Wimmera-Mallee Water Authority

The Grampians Wimmera-Mallee Water Authority (the Authority) is a publicly owned water business that is responsible for managing urban and rural water supply systems in the Grampians, Wimmera and Mallee regions of Western Victoria.

The Authority was formed as a result of the amalgamation of the former Grampians Region Water Authority and the Wimmera-Mallee Water Authority on 1 July 2004. A major objective of the merger was to create a larger water authority with the financial capacity to deliver a major water infrastructure project.

The Authority currently supplies water to farms, households and businesses in the Wimmera-Mallee region through a system of open earthen irrigation channels. The region covers approximately 10 per cent of Victoria. At present, 85 per cent of the 120 000 megalitres of the water released to the channel system each year is lost through seepage and evaporation. Apart from being inefficient and wasteful, it is expensive to maintain and repair and provides poor quality water due to high levels of salt and nutrients.

Water held in the Authority's storages as at July 2007 was 7 per cent of the region's total storage capacity of 769 000 megalitres. The storages were at historical lows. Without significant rain, local communities were likely to run out of potable water.

2.2 Wimmera-Mallee pipeline

The Wimmera-Mallee Pipeline Project is Australia's largest water saving project and is being funded by the Commonwealth Government, the State Government and the Authority. On completion of the project, the Authority's 17 500 km of open earthen channels will be replaced with an 8 800 km piped water distribution system. The new system of seven discrete supply systems will cover 2.3 million hectares and provide water to about 2 500 rural customers, 35 000 urban customers and 36 towns in the region.

The Authority is responsible for the procurement and implementation of the project, and will manage the design and construction of the major trunk pipelines, water pumping stations and water storages of each of the six supply zones and the distribution pipeline systems connected to the supply zone trunk mains.

The proposed pipeline aims to provide reticulated water to more than 9 000 rural properties and 36 towns, save 103 000 megalitres of water that is lost from the existing system, and enable multiple economic, social and environmental benefits to be gained for the region. These prospective benefits include:

- secure, reliable and better quality water supplies for the farms, towns and businesses of the region. The new system hopes to substantially improve the security of supply to 96 per cent for rural and urban customers. Currently, the security of supply is 78 per cent for rural customers and 88 per cent for urban customers
- providing up to 83 000 megalitres of water to the State Government, which may be used to supplement the region's river systems and the Murray River system as environmental flows. This would help to restore these degraded waterways, and provide increased frequency of flows to the region's nationally significant terminal lake system, including Lake Hindmarsh and Lake Albacutya
- providing 20 000 megalitres of additional water for regional economic development
- providing water for 11 recreational lakes in the region, with flow-on benefits for tourism, and water for environmentally significant water bodies located within the area serviced by the new system
- increased environmental flows for the Wimmera and Glenelg rivers and water for existing wetlands.

The proposed pipeline system incorporates trunk and distribution pipelines, pumping stations, water balancing storages, headworks, control systems and other ancillary works. The project also includes the decommissioning of redundant channel assets.

The interim business case that was prepared in 2003 estimated the cost of constructing the pipeline at \$501 million, including \$82 million for on-farm works. The Authority subsequently identified an additional cost of \$21 million to meet project management and governance costs not included in the 2003 business case estimate, bringing the total estimated project cost to \$522 million.

The estimate of the overall project cost has been revised upward and is currently \$688 million (excluding private landholder works). This estimate includes a \$26 million provision for unplanned risk.

The interim business case set a ten-year timeframe for completion of the project. Due to the availability of government funding and the drought, the timeframe was reduced to five years (project completion date 2011). The Authority is presently considering reducing the timeframe to three years (project completion date 2009).

2.3 Audit objectives

The objective of the audit was to examine the efficiency, effectiveness and economy of the planning, procurement and construction processes established for the Wimmera-Mallee Pipeline (WMP) project. This included a review of the progress of the project against established project delivery timelines and budgets, and an assessment of the Authority's management of project risks.

2.4 Audit scope

The audit included a review of the following project elements:

- project selection
- governance
- planning and design
- procurement, including initiating the procurement, tender advertising and acceptance, tender evaluation and selection and management of probity issues
- management of the project development and construction stages of the project, including the management of the project scope, risks, costs, time, human resources and communications.

The criteria used to assess each of these project elements are based on the Project Management Body of Knowledge (PMBOK) and the Department of Treasury and Finance's Gateway Review guidelines.

This audit was performed in accordance with the Australian auditing standards applicable to performance audits and included tests and procedures sufficient to enable audit conclusions to be reached.

The total cost of this audit was \$235 000. The cost includes staff time, overheads and printing.

3 Project governance, selection, planning and design

At a glance

Background

Before commencing any major capital project, organisations need to establish appropriate governance and administrative arrangements for the project and undertake effective project selection, planning and design activities.

Key findings

- Overall, the steps made to select the Wimmera-Mallee Pipeline (WMP) project were sound and the governance framework was appropriate.
- During the early stages of the project, the Authority's Board and the Project Council did not agree on some aspects of the procurement strategy and there was no clear determination of which body had ultimate responsibility for the project. This situation was resolved as the project progressed.
- While the project was adequately supported by the business case, the business case should have been finalised prior to commencing the project.
- The planning for the project was undertaken in a difficult environment where the worsening drought forced the Authority to continually reassess its timelines and change its strategies. Despite this, the Authority's planning processes were generally sound.

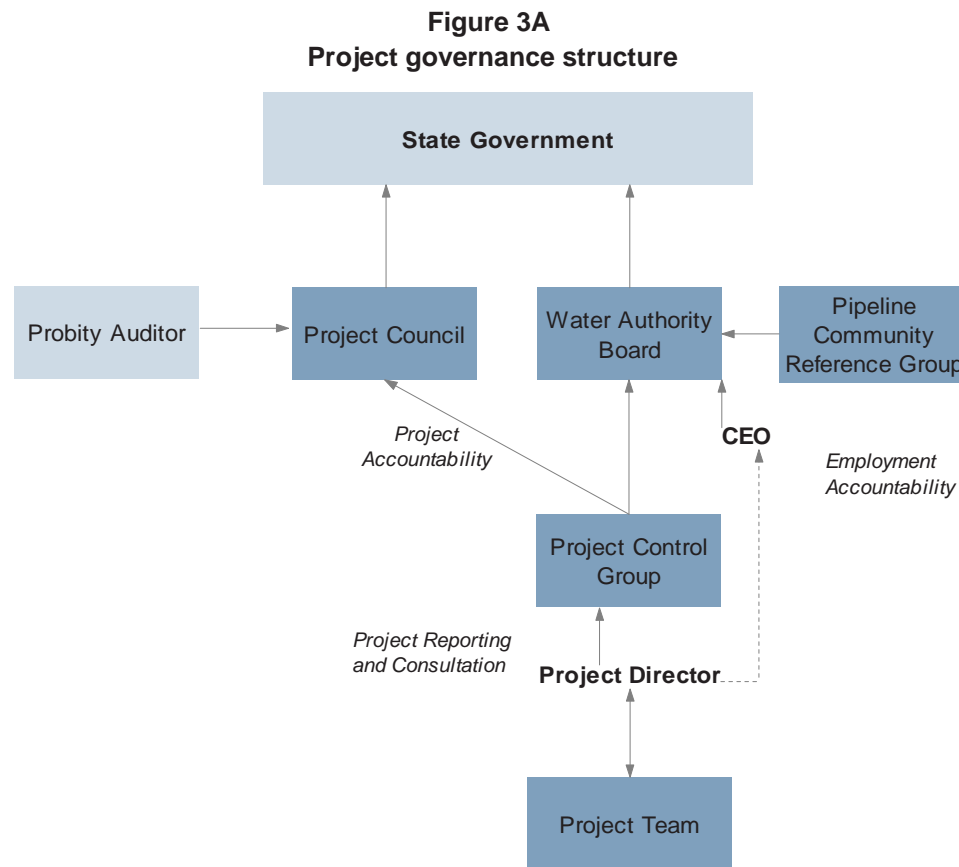
Key recommendation

- The Authority should assess the reasonableness of costings in business cases supporting capital projects, before funding is sought. **(Recommendation 3.1)**

3.1 Governance arrangements for the project

The project governance requirements are set out in the project delivery agreement between the Department of Sustainability and Environment and the Authority. The governance structure is shown in Figure 3A.

The project governance structure and the roles of the participants are shown in Figures 3A and 3B respectively. The Authority’s Audit, Governance and Risk Committee had a role in providing advice to the Project Control Group.



Source: Grampians Wimmera-Mallee Water.

Figures 3A and 3B show how both the Project Council and the Authority’s Board shared responsibility for the project.

Early in the project there was some confusion regarding which body had ultimate responsibility for the project and some differences of opinion regarding aspects of the procurement approach. As the project progressed, the Project Council and Board agreed that the Board had ultimate responsibility for the project, and the working relationship between the Project Council and the Board improved.

Figure 3B
Governance framework established for the project

Governing body	Purpose	Role
Authority Board (eight members)	Act as the proponent for project delivery contracts.	Overall responsibility for enacting key project decisions.
Project Council	Ensure the appropriate use of government funds.	Represent the funding partners and monitor the project.
	Oversee the planning, implementation and management of the project by the PCG and Board.	Approve key project decisions such as the procurement strategy, implementation plan, tender process and evaluation, contract framework and scope change or contract variation.
	Ensure effective project governance, in accordance with the agreed project governance structure.	
Project Control Group (PCG)	Deliver the project in accordance with the project delivery agreement.	Review advice provided by the project team with respect to key project decisions, including the procurement strategy, implementation plan, tender process and evaluation, contract framework and scope change or contract variation.
	Ensure accountability and compliance with the agreed project governance structure.	
	Ensure users and stakeholders are properly considered during the implementation of the project.	
Pipeline Community Reference Group	Ensure ongoing community input into the project.	Represent community views and expectations regarding the project.
Probity Auditor	Provide an independent assurance of the probity of the tender.	Monitor Authority compliance with the probity framework and the tender policies and procedures.
		Advise the Authority on probity issues.
Probity Advisor	Provide advice regarding the management of probity issues.	Develop the probity framework for the project.

Source: Victorian Auditor-General's Office.

Conclusion

Most aspects of the governance framework established for the project were sound.

The Authority:

- identified relevant internal and external accountability relationships
- established appropriate governance arrangements
- established project management and procurement policies and procedures
- established appropriate financial delegations for the project.

During the early stages of the project, there was no clear determination of which body had ultimate responsibility for the project.

3.2 Selecting the Wimmera-Mallee pipeline project

3.2.1 Identifying the need for the project

The objective of providing piped water supplies across the Wimmera-Mallee region has a long history. This objective was partly achieved with the completion of the Northern Mallee pipeline in 2002. That pipeline distributes water through 2 600 kilometres of pipes to 650 000 hectares of farmland and 12 towns in the top north-west corner of the state. The Wimmera-Mallee pipeline is effectively an extension of the Northern Mallee pipeline to the rest of the Wimmera-Mallee region.

With the significant annual loss of water experienced by the Wimmera-Mallee open channel systems, the project was always going to produce significant water savings. There was local community support for the project as far back as the 1980s. This support gathered momentum in the 1990s, with the drought significantly reducing water supplies in the region.

The first formal recognition of the need for the project was outlined in:

- the Authority's 2004 corporate plan
- the Victorian Government's White Paper *Securing Our Water Future Together*, June 2004.

3.2.2 Feasibility study and business case

In 2001 the Commonwealth and State Governments jointly funded a \$250 000 feasibility study to determine whether the project should proceed. The feasibility study:

- identified that about 100 000 megalitres of water is lost every year from the open channel system due to seepage and evaporation
- reviewed a number of options for piping part or the whole Wimmera-Mallee region
- estimated that it would cost \$300 million (\$227 million system costs and \$73 million on-farm costs) to pipe the whole system
- concluded that the fully piped system option offered the greatest value for money.

The preferred proposal involved the retention of large storages supplied by relatively small diameter pipes pumping continuously.

In May 2002 the Commonwealth Government provided \$7.5 million to the former Wimmera-Mallee Water Authority to design the proposed pipe network. At that time the State Government agreed to commit \$77 million to the project, conditional on receiving a matching Commonwealth contribution.

In March 2003 an engineering consultant was appointed by the Department of Sustainability and Environment (DSE) to develop an interim business case and to design the proposed pipe network. The business case (interim report), which was completed in November 2003 and presented to the State and Commonwealth Governments:

- outlined the project vision and objectives

- costed the project at \$501 million, which comprised \$419 million for system costs and \$82 million for on-farm costs (water tanks, pipes, troughs and taps, to be provided by rural customers)
- identified the project risks and benefits
- included a social impact assessment
- outlined the project strategy.

The interim business case project cost estimates were reviewed and updated in September 2005 to include project management costs of \$21 million.

A final business case was not prepared.

3.2.3 Assessing community support

A public consultation process was initiated in 2003 during the development of the business case. It continued for a further two years. This process involved:

- community meetings
- case studies of individual properties, to confirm the costs and benefits of the revised system
- the Wimmera-Mallee Working Group
- focus groups.

In 2005 the Wimmera-Mallee Pipeline Community Reference Group was established to consolidate the public consultation process for the project implementation stage.

Extensive consultation by the Authority contributed to strong community support for the project.

3.2.4 Approval to progress to the planning phase

The project was included in the Australian Government Water Fund (Water Smart Australia Projects) Agreement that was formally executed between the Victorian and Commonwealth Governments on 14 March 2006.

The formal approval to proceed with the project, based on the revised business case, was made jointly by the Commonwealth and State Governments upon DSE and the Authority signing the project delivery agreement on 30 May 2006.

Conclusion

The project selection processes were sound, with the Authority:

- formally identifying the need for the project and assessing the alternatives available to meet the identified need
- adequately supporting the project with a business case
- assessing community support for the project
- obtaining Board and DSE approval to commence the project.

While the project was adequately supported by a subsequent revised business case, the business case should have been finalised prior to commencing the project.

3.3 Project planning and design

3.3.1 Preparing a project plan

The project delivery agreement represented a high-level project planning document for the project. It included the project objectives, the scope of the project, project timelines and mechanisms for monitoring and reporting variations.

The Authority also developed a project execution plan which was approved by the Authority's Board on 6 September 2006. The plan outlines the strategies developed to achieve the project outcomes. The purpose of the plan was to provide guidance and direction to the project team in implementing the project.

The project plan involved undertaking the procurement in stages. The first stage (supply systems one and seven) was to be tendered using a public tender process. The plan also outlined the processes to be used by the Authority to manage project cost, time, risk, quality, communications and scope.

The engineering consultant, engaged by DSE to prepare the business case, prepared an overall concept design for the project and a detailed design of a section of the pipeline. The contractor was to complete the design work undertaken by DSE's consultant.

At the end of the first stage of the project, the plan envisaged that a new procurement strategy would be developed for supply systems two to six.

3.3.2 Internal and external requirements for the project

The Authority's policies require the procurement process to comply with the *Project Development and Construction Management Act 1994*, the *Code of Practice for the Building and Construction Industry*, and the following ministerial directions:

- Ministerial Direction No. 1—Tendering Provisions for Public Construction
- Ministerial Direction No. 2—Contractual Provisions for Public Construction.

The proposed works would normally require planning permits and environmental assessments. However, the Minister for Planning determined that:

- as the project was defined as a 'minor utility installation' under the *Planning and Environment Act 1987*, it did not require planning permits for the planning schemes affected by the project
- an assessment under the *Environment Effects Act 1978* was not required.

These exemptions from the planning requirements were approved on the proviso that environmental management plans were prepared and endorsed by DSE for each stage of the project.

The plans outlined the Authority's approach to managing the environmental issues associated with the project in accordance with legislative and stakeholder considerations. They included assessment processes and strategies to protect the environmental, heritage, social and amenity values that may be affected by construction associated with the project.

The Authority produced and obtained approval for the environmental management plans for the first three stages of the project.

3.3.3 Assessing project risks

A risk management plan and a project risk register for the project were prepared by the Authority in May 2006.

The main objectives of the risk management plan were to:

- establish a consistent approach to identifying, measuring, evaluating, prioritising and treating risk
- establish methods to assess the effectiveness of controls over risks and the need to undertake risk mitigation activities
- assigning responsibility for identifying, measuring, evaluating and treating risk.

The Authority also:

- established processes, including workshops and monthly meetings to identify new and changing risks on the project risk register
- developed reporting mechanisms to keep the Authority's management informed of changes made to the project risk register
- conducted a hazard and operability review on the detailed project design.

3.3.4 Funding the project

The \$522 million estimated cost of the project was to be provided by:

- Commonwealth Government—\$167 million
- State Government—\$167 million
- the Authority—\$106 million
- private landholders (to supply infrastructure on their land)—\$82 million.

3.3.5 Managing stakeholders

The local community was generally supportive of the project from the start as it meant greater security of water supply for water users. As the drought continued, and farmers were increasingly unable to access their water entitlements due to the limited water supplies, the support intensified.

Given the environmental and logistics issues associated with the placement of the pipeline in road reserves, the pipeline was primarily designed to pass through open farmland. Given the significant area to be covered by the pipeline and the large number of properties which the pipeline was to cross, communicating with and managing landholder concerns was a considerable challenge.

In similar construction projects, responsibility for the management of the relationship with landholders was assigned to the contractor. However, the Authority decided that it would undertake this role, as it considered that its existing relationship with landholders meant it was better able to manage this relationship than contractors.

The Authority also established the following reference/liaison groups to manage stakeholder concerns:

- Pipeline Community Reference: to consolidate the public consultation process for the project implementation stage
- Wimmera-Mallee Pipeline Project Landholder Liaison: to monitor the impacts of the project on landowners and address landholder issues, during the first stage of the project.

Procedures to enable the State and Commonwealth Governments to oversee the project and protect their interests are outlined in the project delivery agreement. Both the State and Commonwealth Governments are represented on the Project Council.

3.4 Conclusion

The planning for the project was undertaken in a difficult environment where the worsening drought forced the Authority to continually reassess its timelines and change its strategies. Despite this, the Authority's planning processes were generally sound, with the Authority:

- establishing a project management framework and preparing a project plan
- identifying and assessing project risks
- developing a detailed budget for the project
- identifying stakeholders and developing processes to meet their needs
- establishing reporting processes
- establishing processes to collect, store and maintain information to support the actions and decisions taken to manage the project.

Recommendation

- 3.1 The Authority should assess the reasonableness of costings in business cases supporting capital projects, before funding is sought.

4 Procurement stage

At a glance

Background

Where a significant component of a major project is to be provided by external contractors, sound procurement planning and management is crucial to effective project management.

Key findings

- The procurement process for the Wimmera-Mallee Pipeline (WMP) was well planned.
- A schedule was attached to the probity plan to provide assurance to the Board and management that all planned tender probity actions had been undertaken. As the schedule was not completed, it is not possible to determine whether all the probity controls were adhered to.
- Stage one of the project received a poor tender response and higher than expected tender prices. Efforts to address contractor preferences and the size of the bidder pool would likely have generated a better outcome.
- The Authority's decision (in stage one of the project) to enter into an alliance agreement with a preferred tenderer, who was selected following a traditional fixed price tender process, was unwise.
- In moving to the alliance contract, the Authority reduced the tenderer's risk and increased its own risk, without obtaining a corresponding reduction in the tender price. This further reduced value for money for the community.
- Contractor margins incorporated into the price for supply systems one and seven and for supply system two trunk pipeline alliance contracts were high compared with average margins for the industry.
- By undertaking the system two (trunk pipeline) as an extension to the contract, for the construction of systems one and seven, rather than tendering for the work, the Authority cannot be assured that it achieved the best price for this work.

At a glance – *continued*

Key recommendations

The Grampians Wimmera-Mallee Water Authority should comprehensively review its procurement arrangements to better align them with public sector principles and better practice. **(Recommendation 4.2)**

The Department of Treasury and Finance incorporate into its investment management material clear articulation that public sector agencies should:

- only enter into alliance procurement arrangements after assessing the appropriateness of these arrangements for the particular procurement exercise and assessing the suitability of an alliance partner, using the Department of Treasury and Finance's alliancing guidelines
- not tender for lump-sum contracts and then change the arrangements to alliance contracts
- when establishing alliance agreements, set contractor margins which are consistent with margins used for similar contracts in the relevant sector.

(Recommendation 4.1)

4.1 Introduction

Where a significant component of a major project is to be provided by external contractors, sound procurement planning and management are crucial to effective project management.

The key elements in project procurement are:

- planning the procurement
- managing the procurement process
- managing probity issues.

4.2 Planning the tender

The extent of planning undertaken for a major procurement exercise should be commensurate with the level of risk arising from the proposed engagement.

4.2.1 Market soundings and analysis

Educating the market on the assets, goods and services being acquired and understanding the capacity and appetite of the market is critical to achieving a value for money outcome for the procurement.

In June 2005, a consultant who prepared the business case was engaged by Department of Sustainability and Environment (DSE) to outline potential contract strategies for the project.

A supplementary contract strategy report was then produced by another consultant engaged by DSE, which outlined contract, pipe supply, design and project implementation options. This report included some examination of previous pipeline projects.

Industry briefings were held on 5 September 2005 and 12 September 2005. These meetings were designed to inform the market of the size and scale of the project and the scope of the work. No specific information on contract structures was provided to prospective tenderers at these meetings. The probity auditor advised the Authority on the format and content of these briefing sessions.

The Authority also held discussions with the Plastic Industry Pipe Association (PIPA), which is the representative body for plastic pipe manufacturers in Australia, on 27 September 2005, and the Australian Constructors Association (ACA) on 8 November 2005.

The Authority developed an information pack outlining the proposed tender process for the first stage of the project. This pack was included on the Authority's website in March 2006. The purpose of the pack was to inform tenderers about the project, the procurement and contracting strategy and the tender process for the initial stage of the project.

4.2.2 Developing a tender strategy

The Authority decided to split the project into seven interconnecting supply systems, with the materials and construction of these systems procured in stages. Figure 4A shows the elements of each stage.

Figure 4A
Outline of works for each stage of the project

Supply system	Works
One and seven	206 km of trunk pipeline 1 273 km of distribution pipeline 17 pump stations and booster pump stations 9 storages.
Two	170 km of trunk pipeline 1 616 km of distribution pipeline 23 pump stations and booster pump stations 8 storages.
Three	146 km of trunk pipeline 1 378 km of distribution pipeline 23 pump stations and booster pump stations 5 storages.
Four	287 km of trunk pipeline 1 625 km of distribution pipeline 26 pump stations and booster pump stations 11 storages.
Five	138 km of trunk pipeline 776 km of distribution pipeline 23 pump stations and booster pump stations 6 storages.
Six	81 km of trunk pipeline 637 km of distribution pipeline 23 pump stations and booster pump stations 6 storages.

Source: Information provided by Grampians Wimmera-Mallee Water.

Stage one—supply systems one and seven

There were a number of procurement options relating to what was procured and how the procurement would be structured. With respect to what was procured, the options were:

- a normal 'design and construct' (D&C) contract, where the agency would purchase design and construction services
- variations to a D&C contract, where contractors would be permitted to engineer design innovations into the Authority's reference design. Under this approach, contractors would be required to achieve specific performance requirements, such as flow rates and water pressure at the farm gate.

In each of these approaches, the Authority had the option of procuring plastic and steel pipes through the D&C contract, or directly from a pipe supplier.

The options for the structure of the contract were:

- a **lump-sum contract**, where the contractor would agree to construct the pipeline for a specified price or series of payments
- an **alliance arrangement**, where the Authority would form an alliance with a construction contractor and separately procure piping for the project. Under an alliance, the partners share costs, benefits and risks, and adopt an 'open book' approach to project accounting.

In early 2006 the State Government decided to change the project timeline from ten years to five years. In light of this decision, and after receiving a proposal from the Project Control Group, the Board adopted the following project procurement approach for stage one:

- a standard lump-sum D&C contract for each of the trunk and distribution systems, with the contractor bearing overall delivery risk. The design work undertaken by the design consultant was to be available to bidders, but not warranted by the Authority
- an open tender for the trunk system. The scope of the contract was to be reduced to less than the whole of trunk system, if there was a lack of competitive bids for the project or industry feedback indicated that smaller contract packages were more appropriate. The contracts were to be inclusive of pipe supply. This would be reviewed if contractors did not include competitive pipe prices in their tender. It was later decided to separately tender for pipe supply, but allow construction contractors the option to supply pipe as part of their tender
- an open tender for the distribution system. As with the trunk system, the Authority decided to separately tender the pipe supply, but allow construction contractors the option to supply pipe as part of their tender
- an open tender for the supply of plastic pipe
- an open tender for the supply of steel pipe.

After considering an alliance arrangement, the Board and the Project Control Group decided that an alliance would offer little advantage over the recommended approach, and that an alliance would take longer to develop. A detailed assessment of whether the project was suitable for an alliance was not undertaken.

To comply, the tenders had to be based on the preliminary design carried out by the design consultant engaged by DSE as part of the original business case. However, tenderers could submit alternative tenders, which proposed variations or modifications to the design documents, provided they had submitted a conforming tender.

The lump-sum contract required the contractor to assume the risk of any error, omissions, inconsistencies or unsuitability of the preliminary design documents prepared by the Authority's consultant. By signing the contract the contractor acknowledged that it had no entitlement to claim additional costs, losses or damages, whether in the nature of variations or otherwise arising out of the state of the preliminary design documents.

Evaluation process

The Authority established four evaluation teams, a tender clarification team and a tender review panel to evaluate the tenders.

Each of the evaluation teams (engineering, construction, safety, environment and quality and commercial teams) had between one and three members. These teams were responsible for:

- making an initial assessment of the tenders and identifying necessary clarifications from tenderers (if required)
- assessing the tenders against the evaluation criteria
- receiving and responding to clarification questions from tenderers (where required)
- documenting and reporting the results of their assessments in a tender evaluation report to the tender review panel.

The tender clarification team comprised the Project Director, Project Manager Technical and the Contracts and Procurement Manager. The role of the clarification team was to have discussions with short listed tenderers to clarify what was proposed in the tender or to enable tenderers to clarify the tender offer.

The tender review panel consisted of four individuals employed by external organisations engaged by the Authority. Their role was to provide an independent review of the tender evaluation report.

A process manager was also engaged to provide administrative support to the evaluation teams, record meetings and manage tender evaluation documentation.

The tender evaluation process consisted of four stages:

- Stage one—opening and registering tenders
- Stage two—short listing of preferred tenders
- Stage three— detailed tender evaluation
- Stage four— review and approval.

This process is outlined in the Authority's Procedure for Tender Evaluation and Award.

Seven assessment criteria were developed for the non-commercial aspects of the tender:

- occupational, health and safety
- quality assurance and control system
- risks to the Authority
- environmental management
- industrial relations
- local content
- project execution plan.

A numerical scoring system, using a rating scale from one to ten was developed to assess each tender. Once the assessments were made, the scores assigned to each area were to be multiplied by predetermined weightings to determine an overall score for the non-commercial aspects of the tender.

The overall tender score was weighted equally between the commercial and non-commercial components.

Following the assessment and clarification process, the tender clarification team, in conjunction with the tender assessment teams, were required to prepare a draft tender evaluation report. This report was then reviewed by the Project Control Group, with the evaluation report and the Project Control Group's recommendations forwarded to the Project Council.

4.2.3 Establishing the probity framework

In September 2005 DSE appointed a probity auditor for the project. The probity auditor's role in the tender evaluation process included:

- attending the opening of the tenders
- monitoring the evaluation process to ensure it complies with the Authority's procedures and providing assurance the tender process was fair and equitable
- providing guidance to the evaluation team on probity issues
- attending meetings with tenderers and monitoring authority communication with tenderers during the tender process.

In October 2005 the Authority appointed a probity advisor for the project. The probity advisor was appointed to advise the Authority on all matters and aspects of probity and to assist in the development of the probity plan.

All Authority employees, consultants and advisors to the project signed conflict of interest statements for each stage of the project.

Probity plan

In February 2006 an interim Probity Plan for the project was developed. The plan was subsequently reviewed in March 2006 by the probity auditor.

In April 2006 the Board adopted the plan as an interim document and authorised its immediate implementation. The final plan, which was issued in September 2006:

- included a set of probity principles
- outlined the project decision making process
- outlined the project delegations and purchasing requirements
- provided guidance on dealing with tenderers and conflicts of interest
- outlined procedures for dealing with confidential information, security over tender information and communicating with tenderers
- provided guidance on staff dealings with tenderers
- outlined record keeping requirements.

The plan included a schedule outlining the probity tasks required to be undertaken during the procurement. The schedule:

- identified the documents to be prepared for each task
- provided for the completion of each task to be evidenced by requiring the person completing each task to sign, date and include any comments.

The schedule in the probity plan was not completed.

Conclusion

The procurement process was generally well planned, with the Authority:

- developing a procurement strategy designed to meet its tight timeframes
- identifying and assessing risks associated with the tender
- outlining its procurement process
- developing a probity plan.

Completion of the schedule attached to the probity plan would have been a good control to assure the Board and management that all actions planned to manage tender probity had been undertaken. In the absence of a completed schedule, it was not possible to determine whether all the probity controls established for the project were adhered to.

4.3 Managing the tender

4.3.1 Procurement process

The procurement is being undertaken in four stages. These are outlined in Figure 4B.

Figure 4B
Stages in the WMP tender process

Stage	Contracted works
Stage one	
Supply system one and seven	Tenders for pipe supply, construction of the trunk system and construction of the distribution system.
Stage two	
Supply system five	Tender for the construction of the distribution system and pump stations and water storages.
Stage three	
Supply system two (A)	Original contract was a Deed of Variation to the stage one target cost contract. The Authority later decided not to continue with the Deed of Variation, but to undertake the works under a new design and construct lump-sum contract. The works involved the construction of the trunk system.
Supply system two (B)	Tender for the construction of the distribution system.
Stage four	
Supply systems three, four and six	Works had not been contracted at the date of the audit.

Source: Information provided by the Grampians Wimmera-Mallee Water Authority.

4.3.2 Stage one—supply systems one and seven

The tender consisted of six separate tender packages. The tender process adopted for stage one of the procurement process is outlined in Figure 4C.

Figure 4C
WMP tender process for stage one

Process	Date
The Authority invited expressions of interest via advertisements in the national and local press	21 March 2006
Tender registration for project briefing and site visits. Prospective registrants were required to submit a copy of their company's 2004–05 financial statements as a pre-condition of registration	6 April 2006
The Authority issued a questionnaire designed to assess the capability of the registrants	13 April 2006
Assessment of eligible registrants	April-May
Site visit and briefing	17 May 2006
Registration of interest	26 May 2006
Tenders issued	31 May 2006
Tender closed	14 July 2006
Contract awarded	October 2006

Source: Information provided by the Grampians Wimmera-Mallee Water Authority.

Seventy-two companies registered for the project briefing and site visits. Twelve of these companies failed to provide copies of their financial statements and were eliminated.

Fifty-two registrants completed the Authority's capability questionnaire. Eleven of these registrants were eliminated following the Authority's assessment of the questionnaires, leaving 41 registrants.

Twenty-eight registrants attended the briefing and site visit. Nine tenderers submitted 14 tenders by the 14 July closing date.

The tender evaluation report was prepared on 18 September 2006 and forwarded with the tender evaluation team's recommended tenders to the Project Control Group on 28 September 2006.

The Project Control Group and Project Council endorsed the recommendations (for the trunk, distribution and steel pipe elements), which were then forwarded to the Authority's Board for approval. Board approval was received in October 2006.

Contracts for the supply of steel and PVC pipe

Two organisations submitted two tenders for the supply of steel pipe. The preferred tender was selected on the basis that the tender:

- met the Authority's technical and quality requirements
- represented a lower risk than the other tenderer, which was supplying pipe from overseas

- had an appropriate risk management framework
- was cheaper than the other tender.

Through discussion with the Authority, the preferred tenderer negotiated commercial adjustments to the contract and an amendment to the delivery schedule.

For the supply of PVC pipe, four tenderers received tender documentation, and two tenders were received. However, as the Authority decided to contract for the design, construction and supply of PVC pipe for the distribution system, the Authority decided not continue with this part of the procurement. It was later combined with the trunk and distribution procurement.

Contract for construction of trunk pipeline

Eighteen companies were issued with tender documentation. The response to the tender was poor. The Authority received three tenders to design and construct the trunk pipeline, and one tender to design, construct and supply pipe and materials. Only two of the tenders were assessed as compliant:

- two of the tenderers were medium-sized companies, whose primary business was road construction. One of the medium-sized companies was eliminated as it had not accepted the Authority's contractual arrangements
- one tenderer was a joint venture between a small water pipeline construction company and a national pipe manufacturing company
- the other was eliminated due to the Authority scoring the tender poorly on occupational health and safety and environment management criteria.

After completing occupational health and safety and environmental assessments of each remaining tender, one tender was eliminated on 17 August 2006. This left one tenderer, the joint venture company, as the only conforming tender for the trunk system. This tenderer became the preferred tenderer for the construction of the trunk pipeline and provision of PVC pipe.

Contract for construction of the distribution pipeline

Thirteen companies were issued with tender documentation. The Authority received three tenders to design and construct the pipeline and one tender to design and construct the pipeline and supply the pipe and materials. One of these tenders was received after the date set for receipt of tenders and, as a result, was not assessed.

One of the tenders was submitted by a small pipeline construction company. This tender was eliminated as the Authority considered the company's size posed too great a risk for the project.

This left two tenders from the same tenderer, one for a design and construct contract and one for a design, construct and supply contract. This tenderer was the same tenderer that was awarded the trunk pipeline construction contract for stage one. This tender was \$10 million more expensive than the tenders originally submitted by the other two tenderers.

Value for money

The Authority had only one acceptable tender for the trunk and distribution systems. In these circumstances it would have been justifiable for the Authority to consider re-tendering for the construction of the trunk and distribution systems. However, due to the worsening drought and the real possibility of towns running out of water, the Authority decided to engage its preferred tenderer.

The prices tendered were significantly (67 per cent) greater than expected. The revised business case estimated that stage one would cost \$100 million. The total price tendered was \$167 million across the trunk and distribution systems (\$40 million for steel pipe supply and \$127 million for construction works and supply of PVC pipes).

A major reason for the differences between the budget and actual costs for stage one was the increase in pipe and construction costs in the three years between setting of the budget and conducting the tender. The increased demand for pipeline projects during this period contributed to the increase in pipeline materials and construction costs.

The higher tender prices are likely also to reflect the absence of market competition, with only a small number of companies tendering. The tender failed to attract any larger construction contractors.

Other factors behind the poor response to the tender and higher than expected prices included the following:

- inclusion of pipeline construction, the electrical works and pump station, and storage construction in the one tender. Requiring prospective tenderers to have or acquire expertise in all of these areas constrained and hence potentially limited the supply market
- two major pipe suppliers did not release pipe pricing details to other companies interested in the tender until the day before the tender closed. This left these companies little time to factor these costs into their pricing models
- the size, nature and coverage of the pipeline. Most pipeline contractors were used to constructing a straight pipe through a relatively small number of private properties. This project involved the construction of a network of pipes covering a large number of private properties.

Capability assessments

The capability of contractors who submitted tenders was assessed under the general 'project execution plan' criterion. The results of these assessments were included in the appendices attached to the evaluation report. Tenders were assessed against 22 sub-criteria under the following headings:

- knowledge and experience in the industry
- methodology
- personnel/plant and equipment
- performance
- organisational structure.

The preferred tender for the construction of the trunk and distribution systems was rated highly, receiving an average rating of 7.6 out of 10 for the 22 criteria.

Financial viability

According to the tender process, the financial viability of tenderers was to be determined from an assessment of financial statements provided by tenderers and Dun and Bradstreet reports. This did not take place.

The evaluation report assessed the financial risk of the owners of the joint venture company, selected as the preferred tenderer, as:

- pipe supply company—very low risk
- pipeline construction company—low risk (lowest risk rating of the four construction companies).

In contrast, the Dun and Bradstreet reports rated the joint venture partners as follows:

- pipe supply company—high risk for financial stress and delinquent payments
- pipeline construction company—very high risk of financial stress and low risk of delinquent payments.

Two other pipeline construction companies, rated as medium risk in the evaluation report, were rated as low and very low respectively for financial stress in the Dunn and Bradstreet reports.

On being awarded the stage one contract, the pipeline construction company (which owned 50 per cent of the joint venture company selected as the preferred tenderer) moved from a company earning \$10 million to \$20 million a year to one earning \$100 million plus. This significant and sudden increase in size had implications for its future viability. This issue was not raised in the evaluation report and supporting assessments.

Conclusion

Stage one of the project received a poor tender response and higher than expected tender prices. Additional efforts to structure the procurement so as to be attractive to tenderers, and to market the tender widely, could have increased competition in the tender and therefore improved value for money.

4.3.3 Changing from a lump-sum contract to a target cost contract

The costs of the stage one tenders were significantly greater than those budgeted.

The Authority reviewed the design and other requirements included in the RFT with the preferred tenderer. Following this review, engineering adjustments were introduced that reduced the cost of the proposed works by \$14 million. These adjustments included:

- a reduction in overall length of the pipeline
- reductions in the size and wall thickness of pipe
- removal of the requirement for reinforced concrete to support the pipeline where the pipeline was more than two metres below the surface
- reduction in compaction testing requirements.

The Authority also entered discussions, during the contract negotiation stage, with the preferred tenderer to change from a lump-sum contract to an alliance contract. This option was included in the evaluation report, and considered and approved by the Project Council.

While the request for tender (RFT) allowed tenderers to submit an alternative tender, with a commercial arrangement different to that outlined in the RFT, none of the tenderers submitted such a tender.

The proposed lump-sum contract was replaced by an alliance contract with a target cost of \$113 million.

Unlike a lump-sum contract, the alliance contract allows for different outcomes depending on the actual cost of the contracted works:

- If the project costs are less than the \$98 million 'reimbursable costs', which relate to the direct and site overhead costs, the contractor receives a specified margin and the Authority and the contractor share the benefits of the underruns equally.
- If the project costs equal the reimbursable costs, the contractor receives its margin.
- If the project costs are up to \$14 million more than the reimbursable costs, any additional costs are shared equally by the contractor and the Authority. Depending on the cost overrun, the contractor's margin can be reduced to 53 per cent of its specified value.
- If the project costs are between \$14 million and \$21 million more than the reimbursable costs, the contractor is paid 53 per cent of the margin, with the Authority bearing the additional costs.
- If the project costs are more than \$21 million above the reimbursable costs, the Authority's total costs are capped at \$127 million (\$14 million above the target cost) and all additional costs are to be met by the contractor.

In moving to an alliance contract, the Authority changed a number of the clauses in the contract. Most of the changes reduced the contractor's risk. However, the changes did not result in a reduction in the tender price.

The probity auditor provided assurance to the Board that the change to the alliance contract met probity requirements.

As alliance contracts reduce the risk to tenderers of cost overruns, prices tendered for these contracts should, *all other things considered*, be less than for lump-sum contracts. This was not the case for the Wimmera-Mallee pipeline. The move to a target cost contract did not of itself result in any savings to the Authority, as the difference between the original lump-sum tender and the alliance's target cost was entirely due to changes in the project specifications.

Under the alliance contract, the contractor's margin was around double the industry average for other large design and construct contracts. Most of the contractor's margin was profit.

The contractor's margin under the alliance was more than twice the profit margin estimated in the business case that envisaged a lump-sum contract.

The discussions with the preferred contractor, to move the contract to an alliance contract, were held after the other two tenders had been eliminated. The Authority decided not to inform them of the change in the contract and did not ask them to submit revised tenders.

While project alliances can provide significant benefits, there are also issues and risks associated with this form of procurement. Establishing an effective alliance involves:

- assessing whether an alliance is the best method of procuring the required products and services
- establishing an alliance framework
- selecting a suitable alliance partner
- determining the project target cost, risk and benefit sharing arrangements.

DTF's *Project Alliancing Practitioners' Guide* (April 2006) provides guidance to public agencies on the use of alliances. The guidelines indicate that project alliancing should generally only be considered in the delivery of complex, high-risk infrastructure projects, where risks are unpredictable and best managed collectively. Situations where an alliance would be suitable include where there are:

- numerous complex and/or unpredictable risks
- complex stakeholder issues
- complex external threats or opportunities, that can only be managed collectively
- very tight timelines (driven by project risk rather than organisational capability)
- output specifications that cannot be clearly defined upfront.

While the size of the work involved in the project was new to the Authority, the construction of new, and replacement of old, water pipelines is an activity regularly undertaken by water authorities. Compared to many other projects, the processes involved were not complex, the specifications were relatively easy to define and the risks were generally well understood.

Establishing an alliance is a complex process, which is best managed through the establishment of an alliance framework. Such a framework would include:

- governance and legal arrangements for the alliance
- processes to engage the market in relation to alliancing options
- selection and sign off processes
- developing criteria and scoring guidelines
- processes to educate and prepare the project team.

The alliance agreement contained the key features outlined in the DTF alliancing guidelines, except for:

- a specific 'no partnership/joint venture' clause
- drafting the contract in the third person.

The Authority did not:

- establish an alliance framework
- conduct a process to select an alliance partner (this is a significantly different process from that used to select a contractor under a standard contractual arrangement)
- undertake the detailed process recommended in the Department of Treasury and Finance's guidelines to determine the project's target cost, risk and benefit sharing arrangements.

Moving directly from a lump-sum contract, established following a tender process, to an alliance contract can impair the fairness of a procurement exercise. Giving other companies the opportunity to enter an alliance would have been better practice.

As there was effectively only one compliant and capable tender for both of the trunk and distribution pipelines, the unsuccessful tenderers were unlikely to be affected by this decision. Nevertheless, given it was not advertised as an alliance contract, it cannot be demonstrated that a competitive field was not available.

4.3.4 Reviews of the project

The Authority's internal audit and an external consultant prepared a report following a review of the first stage of the project. The report identified a number of problems with the tender process, including:

- the project team had established separate systems to maintain project records, and as a result, project information was not recorded in the Authority's corporate record management system
- the Authority needed to play a greater role in assisting the project team to undertake the project

- the project team had developed its own set of policies and procedures instead of using those established by the Authority
- tender documentation was not clearly labelled, indexed and catalogued
- copies of some original documents were not kept
- working papers associated with the tender process were destroyed before the contracts were awarded.

The tender process was also subject to the strategic assessment, business case and readiness for market Gateway Reviews.

The Gateway Review of stage one of the tender process stated that ‘the initiative taken to move the preferred tenderer to a target cost estimate type of contract has been seen to deliver the best possible outcome for the client.’

Conclusion

It was not appropriate for the Authority to move from a lump-sum to an alliance contract, following a competitive tender process that envisaged a lump-sum contract. Alliance contracts should only be entered into where they have been adequately assessed, planned for in the procurement strategy and managed in accordance with the DTF guidelines.

In moving to an alliance contract, the Authority reduced the tenderer’s risk and increased its own risk, without obtaining a corresponding reduction in the price for the construction of the pipeline.

Recommendation

- 4.1 The Department of Treasury and Finance incorporate into its investment management material clear articulation that public sector agencies should:
- only enter into alliance procurement arrangements after assessing the appropriateness of these arrangements for the particular procurement exercise and assessing the suitability of an alliance partner, using the Department of Treasury and Finance’s alliancing guidelines
 - not tender for lump-sum contracts and then change the arrangements to alliance contracts
 - when establishing alliance agreements, set contractor margins that are consistent with margins used for similar contracts in the relevant sector.

4.3.5 Stage two—supply system five: Culgoa supply system

On 29 November 2006 fourteen companies responded to a press advertisement to apply to pre-qualify for the stage two of the project. Companies that applied to pre-qualify were requested to complete a detailed questionnaire and capability statement.

On 12 December 2006 the Authority decided that, to introduce the potential for innovation and creativity, this stage of the pipeline should be tendered as a design and construct contract, with tender documentation allowing the tenderer freedom to manage and improve the design provided.

Following a financial and capability assessment of the applications, four companies were asked to tender for supply system five. The request for tender, which was issued on 22 January 2007, required tenders to be submitted by 5 March 2007. This date was later extended to 26 March 2007.

All four companies selected from the pre-qualification process submitted a tender by the due date. Tender prices ranged from \$43.7 million to \$68.5 million. These tender prices were then adjusted for errors and omissions to arrive at adjusted tender prices of between \$41 million and \$67 million.

All four tenders were assessed as compliant. The preferred tenderer scored highest or equal highest in all seven of the assessment criteria and provided the second lowest price, which was \$1.1 million (2.6 per cent) higher than the lowest priced tender. The other two tenders were considered uncompetitive on price.

The preferred tenderer proposed to use a vibratory plough to install polyethylene pipe. This method was new to the industry. The tenderer had to demonstrate through an extensive testing process that the process would meet the Authority's construction requirements and the pipe would provide the same or better results than PVC pipe.

The lowest priced tender was not selected, primarily due to doubts about the tenderer's capacity to complete this stage of the pipeline on time.

The tender evaluation report was provided to the Authority's CEO and the probity auditor on 4 May 2007. The report considered the change from the lump-sum contractual arrangement, outlined in the RFT, to an alliance contract. In contrast to the process adopted in stage one, tenderers in stage two were asked whether they were willing to move to an alliance contract and, if so, how much were they willing to reduce their tender price for this to happen.

Three of the tenders indicated they would be willing to move to an alliance contract. One of the tenderers (tenderer selected to undertake stage one of the project) offered no reduction in its tender price. The other two offered reductions of 1 and 3 per cent of the tender price.

The evaluation team established a target cost for the proposed works of \$44 million. The Authority later determined that there was no advantage in moving to an alliance contract and, as a result, it was decided to stay with the lump-sum contract.

The prices submitted for this stage were more competitive than the prices submitted for stage one. (The prices submitted by tenderers in stage one tender exceeded the cost estimates in the project funding agreement by 67 per cent, while stage two exceeded costs by 22 per cent.) The lessons learned from the stage one tender, in determining the tender strategy for stage two, appear to have generated significant savings for the Authority.

Conclusion

Stage two of the tender involved:

- greater consultation with the market before the tenders were issued
- a pre-qualification process to identify tenderers capable of undertaking the work, prior to a selective tender process.

By incorporating the lessons learned from stage one of the tender in its development of its stage two procurement approach, the Authority is likely to have achieved a better value for money outcome than it achieved in stage one.

4.3.6 Stage three—supply system two

In December 2006 the Authority determined that the greatest risk facing it was the impact of the ongoing drought on the availability of water supplies for its urban customers. The focus of the project changed from the generation of water savings to securing water supplies for these customers. The Authority advanced the sections of the project that would provide water to the towns in the region.

The Authority decided to separate the trunk pipeline from the distribution pipeline for supply system two.

Trunk system

One of the ways to fast track this stage of the project was to directly negotiate with the company (engaged to construct the stage one trunk and distribution pipelines) to provide the trunk pipeline for supply system two.

In December 2006 the Project Council endorsed the Project Control Group's recommendation to deliver the trunk pipeline for supply system two, through an extension of the stage one contract. This was achieved through the Authority and the contractor signing a deed of variation.

The price set in the deed of variation for works was based on the same target cost estimate method used for the delivery of stage one, and was comprised of a reimbursement of the contractors cost and an agreed contractor's margin.

A report prepared for the Project Council in February 2007 stated that the costs for the construction of the trunk pipeline for supply system two represented a 6.6 per cent reduction on the prices included in the contract for stage one.

Under Ministerial Direction No.1, for building and construction works exceeding \$100 000 in value, the Authority is required to undertake a tender process involving either:

- three pre-qualified contractors, or
- a public tender process.

The Authority can obtain an exemption from this requirement where the Chief Executive Officer certifies in writing that one of the following special circumstances exists:

- the work is of an urgent nature
- only a limited number of contractors can perform the work
- the work is specialised security work
- the work represents additional work, which is an extension of approved works under an existing contract
- the works are carried out in leased premises
- exceptional circumstances.

In March 2007 the Board authorised the CEO to sign the exemption certificate under the *Project Development and Construction Management Act 1994* in order for it to accept the contract variation submitted by the contractor. The \$41.9 million of additional work consisted of:

- \$25 million target cost for the supply and installation of the trunk pipeline, including a \$4.3 million contractor's margin
- a provisional target cost of \$10.7 million for pump stations and water storage
- a margin for the pump stations and storages of \$1.9 million.

On 4 April 2007 a deed of variation to the contract for stage one works was executed. The Minister for Water, Environment and Climate Change approved the \$41.9 million variation.

In October 2007 the deed of variation contract was changed to a lump-sum contract. The lump-sum price negotiated with the contractor was \$43.5 million.

The \$43.5 million cost of the works was \$13 million (42 per cent) higher than the cost estimate included in the project delivery agreement. While this increase is less than the 67 per cent overrun incurred for stage one, it was still high.

By not using a competitive tender process to procure the trunk pipeline works, the Authority weakened its bargaining position and, as a result, it could not be assured that the arrangement produced the best value outcome.

Distribution system

On 31 May 2007 the Authority invited companies to apply to pre-qualify for the construction of the supply system two distribution pipelines. The process was similar to that used by the Authority for supply system five.

Following an assessment of the applications, five companies were invited to tender. The RFT required tenders to be submitted by 24 August 2007. This date was later extended by three weeks to 14 September 2007 at the request of several tenderers.

Tenderers were provided with the Authority's preliminary design for information purposes, and were given the opportunity to submit their own preliminary design, make modifications to the Authority's design or adopt the Authority's design in full. The RFT required tenderers to submit a lump-sum price, but tenderers were able to offer alternative pricing structures.

Three companies submitted tenders. The evaluation team assessed each tender on the same basis and using the same criteria used in previous tenders.

One of the tenderers proposed that, in laying the pipeline, it would use four non-vibratory ploughs to lay the smaller diameter pipes (less than 150 mm) and two trenching crews to lay the larger diameter PVC pipes.

After the tenderer demonstrated the use of its plough, on 4 October 2007, the evaluation team decided that the proposed process was not appropriate as the bedding for the pipe was unlikely to comply with the project specification and there would be a high probability that rock could damage the pipe once laid. As a result, this tender was excluded from further consideration.

On 8 October 2007 following the completion of the assessment of the two remaining tenders, the evaluation committee selected a preferred tender and advised the unsuccessful tenderer that it had not won the tender.

While the price tendered by the preferred tenderer was \$1.8 million less than the price submitted by the other remaining tenderer, the preferred tender was rated higher than the unsuccessful tender in only one of the seven non-commercial criteria. The preferred tender proposed using a combination of P9 and P12 pipes, while the other tender proposed using the more expensive P12 pipes.

On 18 October 2007, the unsuccessful tenderer wrote to the Authority indicating that its tender price could be reduced by \$4.8 million if the pipe design requirements were relaxed to accept a mixture of P9 and P12 pipe. This change would have resulted in both tenders effectively submitting the same tender price.

Had the evaluation team used the revised tender price, the unsuccessful tender would have received the highest overall tender score. However, as the Authority had already selected a preferred tender when the offer was received, it rejected the offer.

The Authority told audit that, as the price submitted by the preferred tenderer was more than 10 per cent less than that submitted by the unsuccessful tender, it saw no point in asking the unsuccessful tenderer to reduce its tender price.

During the negotiations with the preferred tenderer the Authority issued Addendum 5, which required an additional 90km of 50mm pipe to be installed. Consequently, the price of the tender from the preferred tenderer was revised on 18 October 2007, to \$39.6 million. The evaluation team considered that all other tenderers would have similar price increases to incorporate the additional work, and therefore this had no bearing on the tender decision.

The \$39.6 million cost of the works was \$5.8 million (17 per cent) more than the estimated cost in the project delivery agreement.

Conclusion

The Authority's decision to use a contract variation to the stage one pipeline construction contract to deliver the supply system two trunk pipeline, was driven by the worsening drought. In using the contract variation, the Authority followed the appropriate process and obtained the required approvals. However, by not using a competitive tender process, the Authority could not be assured it had obtained the best value outcome.

The Authority's tender for the system two distribution pipeline received a poor response, with only three tenders submitted. The rejection of one of these tenders, due to the tenderer's proposed use of an inappropriate construction process, left two tenders for this contract.

When the initial tender prices are compared to the finalised project delivery agreements, supply system two's distribution pipeline generated the best value outcome of the five construction contracts undertaken to date. However, had the Authority asked both tenderers to provide a best and final offer, it may well have engaged a higher quality tender for about the same cost.

Recommendation

4.2 The Authority should comprehensively review its procurement arrangements to better align them with public sector principles and better practice.

4.3.7 Tender four—supply systems three and four

The tender for supply system three and four was sent out to market in December 2007. We have not assessed this tender.

4.4 Probity

4.4.1 Conflicts of interest

All Authority staff, consultants and advisors to the project signed declarations of any conflicts of interest for each stage of the project.

A standard agenda item for the Board, the Audit, Governance and Risk Committee and the Project Control Group was the 'declaration of any direct or indirect pecuniary interest in any item on the agenda'. The Project Council did not have this requirement as an agenda item.

A report following an internal commercial risk review of the tender process (dated 29 September 2006) found that a number of conflict of interest forms signed by staff had not completed the 'details of conflict of interest' section of the form.

No conflict of interest forms had been completed and signed by the Board members and members of the Project Council. Given the level of involvement of the above bodies in the tendering decision making process, it would have been appropriate for the members of both bodies to have completed and signed conflict of interest forms.

Complaints management

The Authority has received two complaints regarding the tender process:

Stage 1—After receiving a request from a tenderer, the Authority decided not to extend the deadline for the submission of stage one tenders. The tenderer subsequently lodged a complaint with the Authority. The Authority's policy is not to extend deadlines, where only one tenderer applies for an extension of time, or to accept late tenders.

Stage 2—An unsuccessful tenderer for supply system five alleged that the preferred tenderer had obtained a copy of its schedule of rates, which had been allegedly leaked from the Authority's pipeline office. The probity auditor investigated this allegation by interviewing staff with access to this information and reviewing the Authority's security over information and conflict of interest declarations. The probity auditor concluded that there was no evidence of the leak coming from the pipeline office.

4.4.2 Communication with tenderers

In order to protect the integrity of the tender process:

- information such as tender proposals, intellectual property and pricing and profit structures must be kept confidential
- the nature and scope of feedback given by the tendering authority should be consistent across tenderers.

Communications protocols for the tender were outlined in the Authority's probity plan.

The Authority conducted tenderer briefing sessions, site inspections and discussions with the short listed tenderers. This involved an initial meeting with each tender where tenderers were asked a set of questions regarding their tender's compliance with the evaluation criteria how the contract was to be managed. These meetings were of the same duration and a record of the discussions and the attendees were maintained. The probity auditor attended all clarification meetings and site inspections.

Briefing sessions were designed to provide the opportunity for the project team to explain the purpose of the procurement, its technical features, the evaluation criteria, and other relevant information. Tenderers were given the opportunity to raise questions before the briefing commenced, which were answered during the briefing with all questions and answers posted on the 'piping it' website.

Any other requests for information by tenderers during the tender process had to be in writing, by e-mail, via the project website for the stage one tender and the secure web-based server for the other stages. The responses to all tenderers' questions were made available to all tenderers.

All meetings with tenderers were:

- attended by the probity auditor
- adequately documented in accordance with the probity plan.

All written requests for information from tenderers and proposed responses were reviewed by the probity auditor prior to responses being issued.

4.4.3 Breach of the Authority's IT systems

On 2 October 2006 the Authority identified that a person or persons illegally accessed its computer system.

An internal investigation was undertaken by the Authority's Knowledge Systems Division. The report generated from the review indicated that 'files relating to the location of staff in the WMPP Office had been accessed'.

In a memorandum from the Authority's internal audit to the Federal Police, internal audit indicated that 'various areas of confidential and critical data have been accessed to an unknown extent and unknown copying and use outside of GMMWater' and that sensitive information relating to the pipeline project was accessed.

The incident was reported to the Victorian State Police and the High Tech Crime Unit of the Australian Federal Police.

In late 2006 the matter was investigated by the Melbourne Office of the Australian Federal Police, and a brief of evidence forwarded to the Melbourne Office of the Commonwealth Director of Public Prosecutions (CDPP) on 23 March 2007 for a legal opinion.

After a review of the material and further enquiries, the CDPP advised the Authority (in September 2007) that 'there is insufficient evidence in respect of the identity of the alleged offender/s. As such, the CDPP will not be commencing any criminal prosecutions in relation to this matter.'

A subsequent review by the Manager Knowledge Systems indicated that information on the pipeline project was not accessed.

Following the incident, the Authority tightened the security of its systems.

4.4.4 Evaluation process

Inconsistencies identified between the information contained in the tender evaluations and the tenders, indicate that the information in tender evaluations was not checked against the tenders to ensure the evaluations contained accurate information.

The tender process would have been enhanced had the probity auditor undertaken this check and formally documented the findings.

Conclusion

The probity arrangements were largely satisfactory, notwithstanding that a review undertaken by the Authority found that conflict of interest forms were not completed for all staff and some forms were incomplete.

Incidents of illegal access to the Authority's IT systems were satisfactorily dealt with. A subsequent review by the Manager Knowledge Systems indicated that information on the pipeline project was not accessed.

5 Project construction

At a glance

Background

Once contractual arrangements have been established with selected providers, it is important for the project team to effectively manage the construction of the pipeline to ensure delivery against the specifications or desired outputs. It is also important for the project team to continue to manage project risks such as cost, time, communications and scope changes.

Key findings

- Construction of the Wimmera-Mallee Pipeline has been well managed. The Authority's completion of the stage one trunk pipeline by October 2007, to secure town supplies and provide water to most rural customers during the 2007–08 summer, was a significant achievement.
- The project is estimated to cost significantly more (\$248 million or 56 per cent) than was provided for in the project delivery agreement.
- As the Authority and its consultants recognised that the costs in the project delivery agreement were understated, the Authority should have formally notified the State Government sooner than it did that the estimated cost of implementing the project was likely to increase.
- The cost overruns have resulted in the need for the Authority to significantly increase its debt and the prices charged to its water customers. The proposed increase in debt creates a risk to the Authority's business.
- The Authority's processes for the reimbursement of contractor costs under alliance contracts need to be more stringent to ensure payments are only made where goods and services are received and used on the project, and the rates used for the reimbursement of contractor salaries are consistent with the contract agreements.

At a glance - *continued*

Key recommendations

The Authority should:

- review its processes for reimbursing contractors under alliance agreements, to ensure payments are only made where goods and services are received and used on the project, and the labour rates paid are consistent with the contracts
- commission independent audits of payments under all alliance contracts.

(Recommendation 5.1)

5.1 Background to project construction

Once the contractual arrangements have been established with contractors, it is important for the project team to effectively manage the construction to ensure delivery against the specifications or the desired outputs. It is also important for the project team to continue to manage project risks such as cost, time, communications and scope changes.

5.2 Managing costs

The project costs were revised a number of times during the project. The latest cost estimate for the project is \$688 million, \$461 million (203 per cent) higher than the initial cost estimate included in the feasibility study. Details of the various revisions of the project costs are included in Figure 5A.

Figure 5A
Evolution of project costs (\$ million)

Document	Capital costs	Project management costs	Total cost to government		
			Amount	Movement from previous cost estimate	
2001 Feasibility study	227	-	227	-	
2003 Interim business case	403	16	419	192	(84%)
2005 Revised business case	403	37	440	21	(5%)
2005 Cost estimate based on detailed design of project	448	37	485	45	(10%)
2005 Cost estimate	600	37	637	152	(31%)
August 2007 program review	633	55	688	51	(8%)
Total movement	406	55	461	461	(203%)

Source: Information provided by Grampians Wimmera-Mallee Water.

The project costs included in the above table do not include on-farm costs paid by landholders, estimated in the revised business case to be around \$82 million. When these costs are included, the overall cost of the project is likely to be around \$770 million.

5.2.1 Cost differences between the feasibility study and interim business case

The \$192 million difference between the estimated project cost in the feasibility study and the business case was primarily due to changed specifications and errors and omissions in the costing of the 2001 feasibility study.

Following a review of the feasibility study, the projected costs increased by \$142 million as a result of:

- adjustments to the specification for pipe sizes, lengths and costs for the trunk mains to take account of the demand requirements of the system in the region.
- inclusion of costs for storage refurbishment and new storages where required
- updating pump station costs to reflect the corrected pipeline sizes and lengths and the need for SCADA control systems
- inclusion of costs for channel decommissioning, which were omitted from the costing.

A further \$50 million was added to the costs due to design changes. The proposal included in the feasibility study also involved the retention of large existing storages, which were to be supplied by relatively small diameter pipes pumping continuously. The business case proposed smaller storages supplied by larger pipes running at peak demand for three months of the year.

5.2.2 Cost differences between the revised business case and the costing based on the detailed design

In 2005 the Authority again revised its project cost estimate, based a detailed design of the proposed pipeline. At the time the business case was completed only around 25 per cent of the pipeline had been designed.

The \$45 million increase in project costs, following the 2005 review, was due to the escalation of material and construction costs between January 2004 to June 2005, combined with an increase in the quantity of pipeline required (21.5 per cent increase in the length of distribution pipeline).

5.2.3 Increase in project cost estimate following a further review

In December 2005 consultants engaged by the Authority estimated that the entire project would cost \$637 million, \$152 million more than the detailed design estimate and \$197 million more than the cost included in the project delivery agreement.

Despite the Authority estimating the capital costs of the project were likely to be significantly more than the \$440 million included in the business case, the project delivery agreement (signed in May 2006) was based on the costs included in the business case.

The project delivery agreement requires the Authority to:

- meet any increases in costs above those outlined in the delivery agreement
- promptly advise the State Government in writing if the estimated cost of implementing the project was likely to increase.

In October 2006 the Project Council was informed that the funding provided in the project delivery agreement would not be sufficient to meet the costs of constructing the pipeline and that a program review would be undertaken to determine the extent of any funding shortfall. However, the State Government was not formally advised of the likely increase in the cost of the project until September 2007, following the program review (see below) and Gateway Review.

5.2.4 Increase in estimated project cost following program review

In November 2006 following the tendering of stage one and a recommendation from the Department of Treasury and Finance's Gateway review team, the Authority's Board initiated a program review.

As a consequence of the review the estimated cost of the project was increased to \$688 million, which included a provision of \$26 million for unplanned risk. This amount was \$51 million more than the cost estimate undertaken following the December 2005 estimate and \$248 million more than the estimate in the project delivery agreement.

The review determined the cost of the contracted works to July 2007 amounted to \$349 million, leaving only \$91 million in funding provided for in the delivery agreement to complete the remaining works. As these works were estimated to cost around \$339 million, there was a \$248 million funding shortfall. The shortfall was determined in 2007 dollars and does not take into account the impact of inflation.

Prior to the November 2007 Federal election the major parties agreed to provide additional funding of \$124 million for the project. The additional Commonwealth funding was provided in the 2008–09 Federal budget.

On 30 October 2007 the then Premier announced the Victorian Government's commitment to provide additional funding of \$99 million, \$41 million from the State's 2007–08 capital budget and \$58 million from the 2008–09 capital budget. This left a \$25 million funding shortfall that the Authority will need to fund.

The movement in project costs for the various supply systems between the project agreement and the August 2007 program review are outlined in Figure 5B. From the table, it can be seen that the stage two tender obtained the lowest cost variances.

Figure 5B
Actual and projected costs per stage of the project

Project stage and cost item	Costs per project agreement (\$million)	Actual cost 31 December 2007 (\$million)	Estimated cost to complete program review (\$million)	Cost variances from project agreement (%)
Contractor costs. Stage one supply system (SS)1 & 7	100	142	155	55
Contractor costs. Stage two SS5	36	42	47	31
Contractor costs. Stage three SS2	69	20	96	39
Contractor costs Stage four SS 3,4,6	193	-	292 (a)	51
Project design	5	4	9	80
Total external costs	403	208	599	49
Project management	37	25	46	24
Other costs ^(b)	-	4	17	-
Provision for unplanned risk	-	-	26	-
Total project costs	440	237	688	56

(a) As the tender process has not been finalised, these are the Authority's estimated costs.

(b) Other costs include community consultation, legal advice, auditing, land liaison and power supply.

Source: Information provided by Grampians Wimmera-Mallee Water.

5.2.5 Project design and management costs

The project delivery agreement included \$16 million in project management costs and \$21 million in additional costs. As the additional costs represent governance costs, construction management costs and project servicing costs they could reasonably be classified as project management costs, bringing the total project management costs to \$37 million. These costs represented 8.4 per cent of the original cost of the project.

The Authority estimates that the final cost of the project management and other costs will be \$63 million, which is \$26 million, or 70 per cent, more than provided for in the agreement.

5.3 Impact of the funding shortfall

The Authority intends to initially fund the shortfall through borrowings to be repaid through increased charges to water consumers over the next five years.

The Authority estimates that its original commitment to the project of \$106 million would result in a 1.4 per cent real increase in water customer tariffs each year over a ten year period. In preparing its interim 2008–13 Water Plan the Authority sought 14.3 per cent real increase for the first year of the regulatory period and decided to determine any future increases resulting from the project once the extent to which the State and Commonwealth Governments were going to fund the shortfall, became clearer.

In September 2007, the Authority prepared an affordability assessment. This document reviewed the impact on the Authority and its customers, modelling a number of different scenarios to fund the projected project cost overruns.

The document determined that, if the Authority had to meet the full cost of the cost overrun:

- customer tariffs would need to increase in real terms by 18.5 per cent for years two to five of the regulatory period
- the interest cover requirement would be significantly above the Essential Services Commission (ESC) benchmark in the first four years of the regulatory period, then return to acceptable levels beyond year four
- the gearing levels for the first regulatory period would go beyond the Essential Services Commission benchmark levels of 60 per cent and were not expected to return to acceptable levels until the second regulatory period.

As a result, there were significant uncertainties regarding the Authority's ability to meet these additional debt servicing obligations and the ability of water customers to pay the proposed price increases.

In order to fund its share of the project costs (\$131 million), the Authority developed a pricing model, which will result in water prices increasing by 14.3 per cent plus CPI in 2008, followed by a 3.4 per cent plus CPI increase in each of the following four years.

The proposed price increases impose a significant additional burden on the Authority's customers over the next five years.

In February 2008 the Authority presented an updated 2008–13 Water Plan to the ESC. This plan, which was accepted in principle by the ESC in late March 2008, included the price increases outlined in the Authority's pricing model.

5.4 Savings

The Authority has undertaken a number of initiatives to reduce the cost of the project, such as introducing value engineering processes that allowed the Authority's engineers to redesign the project to:

- minimise the quantities and/or sizes of materials
- alter project demand requirements
- shorten pipe routes.

The management of the tender process also resulted in contractor innovations such as the use of plough technology and the use of cheaper polyethylene pipe instead of PVC pipe.

By December 2007 the Authority indicated that these design changes had generated cost savings of \$30 million.

5.5 Managing timelines

The project was originally expected to be completed in 2016. However, as a result of the worsening drought conditions and the availability of Commonwealth Government funding, this date was brought forward to 2011. In 2007 the projected completion date was amended to 2009. The revised planned and actual dates for the completion of each stage of the pipeline are outlined in Figure 5C.

From the figure it can be seen that stage one and two are up to seven months behind their original completion dates and stage three is on track to meet its timelines. Overall, given the significant reductions in the project timelines, the tender and construction of the first three stages of the project have been timely.

The Authority informed audit that a number of the time extensions sought by contractors have been accepted by the Authority as valid.

Figure 5C
Work planned to be completed and actual work completed
at 31 January 2008

Supply system	Original completion dates	Planned completion %	Actual completion %	Expected completion date	Time overrun (months)
One and seven	August 2007	100	90	April 2008	7
Five	October and November 2007 (pipeline and pump stations)	100	Pipeline-100	April 2008	5 to 6
	February 2008 (Storages)	100	Pump stations and storage-80	April 2008	2
Two	July 2008	63	61	July 2008	-
Three	31 December 2009 ^(a)	-	-	-	-
Four	31 December 2009 ^(a)	-	-	-	-
Six	30 June 2009 ^(a)	-	-	-	-

(a) The tender process for supply systems three, four and six had not been completed at the time of the audit.

Source: Information provided by Grampians Wimmera-Mallee Water.

5.6 Managing quality

Quality management requirements are set out in the project delivery agreement. The project was implemented under a quality management plan in line with the standards prepared by Standards Australia. The plan covered cost, time, risk, quality, communications and scope management. Quality assurance requirements are also included in the contracts between the Authority and the contractors.

The Authority has established quality management policies, a quality plan and a quality manual, and the project team's monthly reports include information on quality control.

The quality management systems applied by the Authority have generally been effective. However, three examples of inferior pipe not meeting specification have been identified. These include:

- a section of 50mm pipe that had been laid. The Authority has accepted an external warranty provided by the supplier to replace the pipe should it fail rather than require the contractor to provide replacement pipe
- 50mm pipe that was delivered to the site but not installed. The defective pipe was rejected by the Authority and replaced by the supplier
- a 1.4km of 200mm defective pipe laid by the contractor is being replaced.

The earlier identification of the non-compliant pipe by the Authority, the supplier or the contractor, would have prevented the first and third problems referred to in these instances.

5.7 Managing risk

A risk management plan and a project risk register were established for the project. The Board's Audit Governance and Risk Committee reviewed the management of risks and the project team reported on the management of risks to the Project Council.

Other risk assessments undertaken were:

- a cost risk assessment for the project
- an assessment of the pipe supply options and risks for stage one of the tender.

The Authority has a formal process to review and reassess project risk during each phase of the tender and risks are discussed at the Project Council meetings.

The pipeline project team prepares monthly reports on the project for circulation to the Project Control Group, Project Council and the Board. The reports provide detailed information on the top ten risks (risk and rating) and any new risks identified.

The Authority maintains a record of safety incidents in an incident summary. At December 2007, 128 incidents had been recorded. Of these, 82 were safety related. None of the safety related incidents have resulted in lost time and 25 incidents were near misses.

One of the most significant incidents involved a non-fatal trench collapse at Bellfield Dam during work on the pipeline, while an employee of the contractor was in the trench. The trench was inappropriately secured, while contractor staff worked on the pipe.

In May 2007, the Authority wrote to the contractor advising of the Authority's dissatisfaction with the contractor's management of OH&S and the need for improvement.

The Authority notified Worksafe of the incident, to ensure the matter was investigated. The incident was reported to the Project Council, who advised the Authority to obtain specialist OH&S legal advice.

This legal advice identified deficiencies in the Authority's contractual arrangements. Prior to the legal advice the Authority was responsible for OH&S risks, yet most of these risks were more appropriately the responsibility of the contractor. Following this legal advice, the Authority amended its contractual documentation. This is appropriate.

5.7.1 Managing scope changes

A number of scope changes have been made during the project. The most significant of these were:

- the \$14 million in engineering changes made following the selection of a preferred tender in stage one of the project
- the 90km of additional pipe added to the stage three distribution system after the tender was awarded
- deletion of twin storages

- use of natural head rather than booster pumps
- deferral of construction of pumps until growth water was needed.

Most of these changes were driven by the Authority's attempts to reduce project costs. The Authority took appropriate steps in identifying, assessing and gaining approval for the changes.

5.8 Stakeholder management

Stakeholders and their information needs were identified when the project was planned. The Authority has kept stakeholders informed of the project during the construction phase, using the following methods:

- **On-Farm Water Reticulation Guide**—a publication informing the farmers of the impact the pipeline project would have on their land and the benefits the pipeline project would bring to them.
- **Website**—the site provides up to date information on the project.
- **Information sessions**—the first was held in the early stages of the project and the second nine months later. Both ran for a period of four weeks. These sessions were an open discussion, where concerns were raised.
- **Fact sheets**—published with information/responses addressing concerns raised by stakeholders at the information sessions. These were printed and also uploaded on to the website.
- **Newsletter: 'Piping it'**—initially distributed quarterly to every stakeholder in the region, now distributed when deemed 'necessary'.
- **Land liaison officers**—staff members are available to visit properties to answer stakeholder concerns or issues.
- **Radio**—ABC radio includes a 10 minute segment on the project every second Friday.
- **Newspapers**—at the start of the project, monthly articles were placed in 14 local newspapers. As the project progressed, articles were provided on an as needs basis.

5.8.1 Managing landholders

The management of landholders involved:

- the Authority contacting landholders to advise them of the proposed pipeline, the impact on their properties and businesses and to make changes to the preliminary design to address their concerns
- contractors dealing directly with farmers as work progressed on their properties
- the Authority responding to and addressing landholder complaints resulting from the construction process (rubbish left on site by the contractor, damaged fencing and non-restoration of the site subsequent to the completion of works)
- the Authority, in conjunction with the Department of Primary Industry and the Victorian Farmers Federation, running field days and directly advising landholders in relation to on-farm works funded by landholders.

The agreements signed between the Authority and contractors required contractors to provide a two year warranty on their materials and construction works.

Under the *Land Acquisition and Compensation Act 1996*, the Authority has the power to compulsorily acquire land for a pipeline easement and has the right to enter properties to construct the pipeline. The Authority is obliged to pay landholders compensation in relation to establishment of easements, loss of crops or other financial impact on landholder businesses, only to the extent that these costs exceed the benefits provided to the landholder by the pipeline.

Compensation costs for easements paid by the Authority to landholders to date are:

- Systems one and seven—\$609 000
- System five—\$59 000
- System two—nil.

These compensation payments relate to landholders who are not supplied water by the pipeline.

5.9 Water savings

In addition to securing the water supplies for the region, the project was to generate:

- 83 000 megalitres of water to be transferred to the environmental water reserve held by the Victorian Minister for Water as bulk water entitlements for use as environmental flows
- 20 000 megalitres for regional development.

It is proposed that the water savings will be progressively achieved as the project is implemented. At the date of this report, none of the stages of the project have been completed so no water savings have been achieved.

However, with storages at only 9 per cent of capacity in August 2007, the Authority was able to secure town supplies and provide water to most rural customers during 2007–08. This would not have been possible without the supply system one trunk pipeline being completed by October 2007.

5.10 Payment processes

Contractor payment claims, certificates, calculations and the timing of payments are made in accordance with contracts established between the Authority and the contractors.

Payments under the target cost agreement involved the following processes:

- Progress claims, supported by copies of invoices and coversheets that list key source data relating to the invoice are provided by the contractor. The cover sheet is also used for reimbursement of contractor expenses where there is no invoice from a third party supplier.

- An Authority officer checks the invoices for quantity, unit rate, amount and general validity (rates are checked back to the target cost estimate in the Contract). The officer signs a form to indicate he or she has reviewed the invoices and is satisfied the claims are valid.
- The Authority's cost control engineer and senior contracts and procurement officer review the progress claim. Disputed and/or rejected reimbursements are highlighted and deducted from the payment.
- Disputed items are sent back to the contractor for further comment and/or adjustment.
- The contractor submits an invoice for the reimbursement of costs and the contractor's margin.
- The Payment Certificate is prepared and signed off by the Superintendent. The payment certificate and other supporting documents are then forwarded to the Project Director for approval before being sent the Authority's Managing Director.

A review of the contractor payment process by a consultant engaged by the Authority found that:

- The process for checking and verifying contractor payments had not been formally developed and/or documented.
- The Authority does not verify the delivery of materials or sight delivery docket. One example identified involved the delivery of PVC pipe (approximately \$7 million in value).
- The verification of rates invoiced to the contract rate is based on a sample, not an electronic matching to agreed rates.
- Petty cash reimbursements are made without supporting evidence.

Audit reviewed three months of the payments made under the stage one target cost contract. The audit found:

- The procedures and controls over the payment have still not been documented.
- Except for the above audit, there was no other review of the payment process.
- There was a lack of information on file to indicate the resolution of claims queried by Authority staff. Generally a 'post it' sticker was placed on the invoice questioning the validity of the claim, without an explanation of whether and how the query had been resolved.
- Reimbursements of credit card payments are only supported by the cardholder's statement. There is no information on the nature of the purchases or how they relate to the project.
- A small number of instances of interstate hotel and entertainment expenditure were identified.
- The Authority indicated that it intends to have an independent audit of the contract payments made to the company constructing the pipeline conducted at the end of the stage one contract.

5.11 Conclusion

The construction phase of the project has been well managed. Specifically:

- Due to the impact of the drought, the project timelines have been significantly reduced on two occasions. The Authority is progressing well against the revised timelines.
- Project risks, scope changes and stakeholder needs have been appropriately managed.

The Authority's completion of the stage one trunk pipeline by October 2007, to secure town supplies and provide water to most rural customers during the 2007--08 summer, was a significant achievement.

The project is estimated to cost significantly more (\$248 million or 56 per cent) than was provided for in the project delivery agreement. These cost overruns would have been higher if not for the cost savings achieved by the project team.

As the Authority and its consultants recognised that the costs in the project delivery agreement were understated, the Authority should have formally notified the State Government sooner than it did that the estimated cost of implementing the project was likely to increase.

Project management and other costs of \$63 million are estimated by the Authority to be significantly (70 per cent) greater than the costs provided for in the project agreement and are considered by audit to be high.

The cost overruns have resulted in the need for the Authority to significantly increase its debt and the prices charged to its water customers. The proposed increase in debt creates a risk to the Authority's business.

Contracts entered into by the Authority during the first stage of the project exposed the Authority to risks associated with OH&S. Following legal advice, the contract documentation has been amended to reduce the Authority's risk in relation to these issues.

The Authority's processes for reimbursing contractor costs under contracts need to be more stringent to ensure payments are only made where goods and services are received and used on the project, and the rates used for the reimbursement of contractor salaries are consistent with the contract agreements.

Recommendation

5.1 The Authority should:

- review its processes for reimbursing contractors under alliance agreements, to ensure payments are only made where goods and services are received and used on the project, and the labour rates paid are consistent with the contracts
- commission independent audits of payments under all alliance contracts.

Appendix A.

Wimmera-Mallee Pipeline – agency responses

Agency Response	Discussion	Further Audit Comment
<p>Response by the Managing Director, GWMWater</p>		
<p>1. Target cost contracts</p>		
<p>GWMWater notes the opinion formed that the target cost form of contract negotiated with the preferred tenderer for the first stage of the project is an alliance agreement. This matter has been the subject of considerable discussion throughout the course of the audit.</p> <p>GWMWater contends that the target cost form of contract is not an alliance agreement, as it does not implement all of the features of a project alliance as defined in the Project Alliances Guidelines of the Department of Treasury and Finance, which is the framework relied upon in the audit report. The form of contract used was derived from Australian Standard (AS) General Conditions of Contract for Design and Construct, more generally referred to AS4300.</p> <p>GWMWater introduced amendments to the AS conditions of contract to incorporate principles to achieve certain aspects of a 'relationship' style of contract. In addition, the commercial structure of the contract incorporated certain 'painshare and gainshare' rules of a form similar to a project alliance, to create an incentive for both contractual parties to control costs over the duration of the contract.</p> <p>GWMWater maintains the view that a target cost contract is the correct description for the Design and Construct contract for the first stage of the project.</p>	<p>DTF guidelines state that a project alliance is a commercial/legal framework between a department, agency or government-backed enterprise (GBE) as 'owner'-participant and one or more private sector parties as 'service providers' or 'non-owner participants' (NOPs) for delivering one or more capital works projects, characterised by:</p> <ul style="list-style-type: none"> • Collective sharing of (nearly) all project risks • No fault, no blame and no dispute between the alliance participants (except in very limited cases of default) • Payment of NOP's for their services under a 'three-limb' compensation model comprising: <ul style="list-style-type: none"> • reimbursement of NOP's on 100 per cent open book basis • a fee to cover corporate overheads and normal profit • a gainshare/painshare regime where the rewards of outstanding performance and the pain of poor performance are shared equitably among all alliance participants • Unanimous principle-based decision-making on all key project issues • An integrated project team selected on the basis of best person for each position. <p>With the possible exception of the last dot point all of the other characteristics of an alliance are present in the contractual arrangement between the Authority and the contractor.</p>	<p>VAGO considers the arrangement has most if not all of the characteristics of an alliance as outlined in the DTF Project Alliance Practitioners' Guide.</p>

Agency Response	Discussion	Further Audit Comment
<p>Response by the Managing Director, GWMWater - continued</p> <p>1. Target cost contracts – continued</p> <p>GWMWater specifically notes the opinions that the decision to enter into a target cost contract was ‘unwise’ and ‘further reduced value for money for the community’.</p> <p>GWMWater submits that, in outlining this opinion, there has been no consideration given to the subsequent progress of the contract since its implementation and the progressively forecast position of the final contract cost outcome, which was available during the audit.</p> <p>Currently, the forecast of the actual out-turn cost under the contract shows that savings will be achieved. GWMWater will realise commercial benefits as a result of the incentivised nature of the target cost form of contract, and will achieve a financial return for the risk position accepted under that contract. A final reconciliation of the out-turn cost will occur when the contractor achieves practical completion, at which time the extent of any savings to GWMWater will be quantified.</p> <p>GWMWater contends that any conclusion formed on the tender decision that does not take account of prospective outcomes is not fairly representing the context of the tender decision.</p>	<p>In moving from a lump sum contract to a target cost contract, the risks, on balance, are transferred from the contractor to the tendering authority. As a result, it is reasonable to expect a corresponding reduction in the tender price. Three of the four tenderers who tendered for stage two lump sum contracts indicated they were willing to move to an alliance agreement. Two of the three tenderers offered discounts on the tender prices they submitted for the Authority’s standard lump sum contract, if these contracts were changed to target cost contracts. This illustrates that moving from a lump sum contract to a target cost contract, cost savings should be produced.</p> <p>Whether the stage one target agreement results in payments below the target cost set in the contract, is irrelevant. The Authority should have received a discount for the risk transfer. The fact that contractor is able to complete the contracted work for less than the target cost could indicate the target cost was set too high in the first place.</p>	<p>In moving from a lump sum contract to a target cost contract, the risks (on balance) are transferred from the contractor to the tendering authority. As a result, it is reasonable to expect a corresponding reduction in the tender price.</p>

Agency Response	Discussion	Further Audit Comment
<p>Response by the Managing Director, GWMWater - continued</p> <p>1. Target cost contracts – continued</p> <p>GWMWater notes opinions expressed which infer that, for a number of ‘engineering adjustments’, an equivalent level of cost reduction in the original lump sum offer for the first stage would have been achieved if negotiations had continued on a lump sum form of contract as opposed to converting to a target cost contract. The conclusion drawn is that, in converting the form of contract, GWMWater increased its risk exposure without gaining any additional cost reduction benefit.</p> <p>GWMWater refers again to the Gateway Review findings previously discussed above, where the findings stated that the target cost contract approach enabled GWMWater to better manage its financial exposure.</p> <p>GWMWater contends that the achievement of equivalent levels of cost reduction on the initial lump sum price for engineering adjustments, irrespective of whether negotiations proceed on the basis of either a lump sum or target cost form of contract, cannot be ascertained in this case. The only negotiated outcomes and commensurate cost reductions that can be demonstrated to the fullest extent are those based on converting from a lump sum to target cost form of contract, as this was the principal basis of negotiation followed by the Tender Clarification Team (TCT) during the first stage.</p> <p>In negotiating the target cost contract through an ‘open-book’ analysis with the preferred tenderer, the TCT was able to confirm the cost of the engineering adjustments as priced within the tendered contract sum and, under the target cost approach, then able to secure a deduction of the full amount of those costs from the contract sum price as savings.</p> <p>If the TCT had pursued negotiations for the same extent of engineering adjustments under a lump sum form of contract, experience strongly suggests that the tenderer would be unlikely to disclose cost information via an ‘open-book’ analysis, and so the commensurate cost savings would be limited to the reasonableness of cost adjustments offered by the tenderer.</p> <p>Experience also suggests that, for an equivalent level of scope change, the amount of the savings achieved negotiating on a lump sum contractual basis are likely to be less in comparison to a target cost contract using an ‘open-book’ approach.</p>	<p>The \$14 million cost reductions resulted from changes to the contract specifications. These changes included:</p> <ul style="list-style-type: none"> • a reduction in overall length of the pipeline • reductions in the size and wall thickness of pipe • removal of the requirement for reinforced concrete to support the pipeline where the pipeline was more than two meters below the surface • reduction in compaction testing requirement. <p>As the changes to the specifications reduced the costs of constructing the pipeline, it is reasonable to expect the contractor would reduce the contract price regardless of the contractual arrangement.</p> <p>Many of these changes were suggested by the contractor in discussions prior to the tender being awarded. Some were identified by the Authority and agreed to by the contractor.</p> <p>As the cost reductions resulted from changes to specifications, the majority of the savings would have been achieved with or without the Authority accessing the contractor’s financial records.</p>	<p>The \$14 million cost reductions principally resulted from changes to the contract specifications.</p>

Agency Response	Discussion	Further Audit Comment
<p>Response by the Managing Director, GWMWater - continued</p> <p>2. Extension of an existing contract to construct Supply System 2.</p> <p>With respect to the trunk pipeline for Supply System 2, GWMWater notes the findings that GWMWater could not be assured that it achieved best price for this work given that procurement was via an extension to an existing contract. It is fair to say that GWMWater could not be assured that it achieved a best price outcome through competitive tendering within the market. However, it was demonstrated that the accepted offer achieved an estimated reduction on the prices applicable under the existing contract (as acknowledged on Page 35 of the audit report). Further, the Project Council noted that the offer was 'considered to demonstrate competitiveness and value for money'.</p>	<p>The project delivery agreement between the Authority and DSE required the Authority to promptly advise the State Government in writing if the estimated cost of implementing the project was likely to increase.</p> <p>In December 2005 the Authority had a cost estimate prepared by a consultant indicating that the cost of the project was likely to exceed that outlined in the project delivery agreement by almost \$200 million. The State Government was not formally advised of the likely cost overrun until September 2007.</p>	<p>No further comment.</p>
<p>3. Notifying the State Government of cost overruns</p> <p>The audit report presents a view that GWMWater should have provided earlier notification to the Victorian Government when it was apparent that the forecast cost to complete the WMPP was likely to increase significantly. The audit report also indicates (refer to Section 5.2.3, Page 45) that the Project Council was aware of the likely overruns in October 2006.</p> <p>With completion of tendering for the first stage of the project, and through the Project Council, the funding partners resolved to commission a Program Review. This review would establish a revised cost estimate to complete the project that best represented the prevailing market conditions, tender responses to the procurement strategy for both the first and second stages of the project and the project cost risks.</p> <p>The Program Review presented a revised project cost estimate that was then independently reviewed through the Gateway process. Once the Gateway Review was completed, and assurance provided to the funding partners in respect of the robustness and adequacy of the revised cost estimate, formal notification was issued to the Secretary of DSE.</p> <p>GWMWater submits that the time taken prior to formally notifying the Victorian Government of the revised cost estimate was appropriate, and ensured that a proper cost basis was provided to both governments for subsequent deliberations on revised funding contributions for the project.</p>	<p>The project delivery agreement between the Authority and DSE required the Authority to promptly advise the State Government in writing if the estimated cost of implementing the project was likely to increase.</p> <p>In December 2005 the Authority had a cost estimate prepared by a consultant indicating that the cost of the project was likely to exceed that outlined in the project delivery agreement by almost \$200 million. The State Government was not formally advised of the likely cost overrun until September 2007.</p>	<p>It is acknowledged that the Authority wanted to provide the State Government with an accurate and independently verified revised cost estimate for the project. However, the Authority's advice to the State Government of the significant cost overrun, nearly two years after it was aware of the overrun does not constitute prompt action.</p>

Agency Response	Discussion	Further Audit Comment
<p>Response by the Managing Director, GWMWater - continued</p> <p>3. Notifying the State Government of cost overruns –continued</p> <p>For completeness, the second level dot point on page 44 should be amended to read as follows:</p> <p>‘... meet any increases in costs above those outlined in the delivery agreement, <i>in accordance with the provisions of that agreement relating to delivery agent funding.</i>’</p> <p>4. Preliminary design</p> <p>The commentary refers in several instances to ‘preliminary design’ and ‘preliminary design documents’. GWMWater submits that any reference to the design being in a preliminary form is incorrect, and such reference should be deleted from these two paragraphs. It has been demonstrated that the design basis was sufficiently detailed to enable the pricing of tenders and the development of final design outputs by contractors.</p>	<p>Evidence examined during the audit, supports audit comments.</p> <p>A consultant engaged by DSE prepared an overall concept design and a detailed design of a section of the pipeline. The contractor was to complete the design work undertaken by the DSE consultant.</p> <p>The contract indicates that the project design had been completed to the following extent:</p> <ul style="list-style-type: none"> • Final engineering design • Preliminary design • Project requirements <p>Where the design was completed to the ‘final engineering design stage’, the contractor was required to complete the works in accordance with final engineering design documents.</p> <p>Where the design was at the preliminary design stage, the contractor was required to prepare all relevant design documents and develop the preliminary design documents to the stage of ‘final engineering design’.</p> <p>Where the design was at the stage of ‘project requirements’, the contractor was required to prepare all relevant design documents to the stage of ‘final engineering design’.</p>	<p>No further comment.</p> <p>The design was partially completed by a consultant engaged by DSE and was to be completed by the contractor.</p> <p>The stage one contract clearly stated that the successful contractor would be provided with a partially complete project design which the contractor would have to complete.</p>
<p>Response by the Secretary, Department of Sustainability and Environment</p> <p>1. Notifying the State Government of cost overruns</p> <p>An independent affordability assessment commissioned by the State Government concluded that an additional contribution of up to \$50 million from GWMW was affordable for both the water corporation and for its customers.</p> <p>In regards to the finding that GWMW should have notified the State Government sooner than it did that the estimated cost of the project was likely to increase, I confirm that the Department was happy with the period of notification received from GWMW of the consequences of higher than anticipated tender pricing.</p>		<p>See comments page 59.</p>

VICTORIA

Victorian
Auditor-General

Goldfields Superpipe

1 Executive summary

1.1 Introduction

For some years now the Victorian Government's delivery and management of its water resources have been undertaken in unprecedented drought conditions. In the key regional centres of Bendigo and Ballarat the drought has reduced the volume of water in storages to approximately 10 per cent of capacity, their lowest level ever recorded. Despite the severe water restrictions introduced by the Coliban Water Authority ('Coliban') and the Central Highlands Water Authority ('Central Highlands'), Bendigo and Ballarat almost exhausted their drinking water supplies in 2007.

In response to the extreme conditions, the State Government, in conjunction with Coliban and Central Highlands, is constructing a major water pipeline, called the 'Goldfields Superpipe' that will connect Ballarat and Bendigo to the Goulburn River system.¹ The Superpipe aims to improve the security of water supplies in the region by allowing both water authorities to access the more reliable supplies in the Goulburn River.

The Superpipe has three components:

- a Bendigo pipeline that will draw water from the Waranga Western Channel and deliver it to Bendigo via the Eppalock to Sandhurst pipeline, and supply Lake Eppalock
- a Ballarat pipeline, from Bendigo's Sandhurst Reservoir to Ballarat
- an augmentation of the existing Eppalock to Sandhurst pipeline.

The 46.5km Bendigo pipeline is being managed by Coliban. The 87km Ballarat pipeline is being managed by Central Highlands. The Commonwealth and State Governments are part-funding the Bendigo and Ballarat pipelines.

The Bendigo component cost \$66 million to build and reached practical completion on 1 September 2007. The Ballarat pipeline was budgeted to cost \$180 million. As at the end of December 2007, the Ballarat pipeline was 60 per cent complete and is on schedule to be completed by August 2008.

¹ The pipeline was completed in May 2008.

1.2 Key findings

Overall, both water authorities planned their respective project components well. They completed the necessary steps of detailing the strategic imperative for the projects, assessing alternative options, consulting with the community and obtaining the necessary approvals.

Coliban did not complete a final feasibility study before commencing the Bendigo project. Ordinarily, this would be a significant exception. However, this is mitigated by the imperatives created by the drought, the preparation of an interim feasibility study, a satisfactory business case and the fact that the other short-listed options would not have delivered sufficient water.

Construction of both pipelines commenced before Commonwealth funding was secured. It is recognised that the worsening drought imposed an imperative on the projects, and the Minister for Water requested the two authorities to commence the projects. Nevertheless, even in urgent circumstances, prudent project management requires that funding sources be secured, or, alternatively, that clear contingency arrangements be put in place.

Notwithstanding the urgency of the projects, the procurement processes would have been more robust if:

- Coliban had prepared a probity plan and contract management plan at the outset
- Coliban and Central Highlands had separated the roles of probity auditor and probity adviser
- Coliban's and Central Highlands' probity auditors had attended all meetings with tenderers
- the funding contingency was explicit and transparent.

Central Highlands' decision to purchase pipe directly from pipe manufacturers and the strategy adopted to engage construction contractors, entailed it accepting the project supply risk and a large part of the construction risk. While this decision was driven by Central Highlands' need to complete the pipeline as quickly as possible, it exposed the Authority to a higher level of risk than would have been the case had another procurement strategy been adopted. To date, this calculated risk has had no negative financial or other impacts.

While both agencies satisfactorily conducted standard tender processes and entered into standard contractual arrangements with contractors, Coliban subsequently converted a standard procurement contract into an alliance agreement which exposed the agency to higher risk and costs because:

- the assessment of alliance partners involves a materially different process and focus from the assessment of providers under standard procurement contracts
- moving to an alliance agreement without the competitive tension from other bidders heightens the prospect of diminished value for money, in terms of the price and risk allocation.

Overall, we found that the construction of the Bendigo pipeline was well managed and that Central Highlands is currently managing the construction of its section well. Both authorities ensured that the products and services procured to date have been delivered to the quality standards, timeframes and costs specified in the contracts.

Finally, part of the pipeline is to be used to provide water to both Coliban and Central Highlands. The two water authorities propose to enter a joint venture agreement that will cover the ownership and maintenance of the Superpipe and access to the water it provides. The joint venture agreement between Coliban and Central Highlands has been approved by both authorities and is awaiting the signature of the Minister for Water.

1.3 Key recommendations

For all major procurements, water authorities should:

- secure project funding, or establish an explicit contingency, prior to commencing procurement (**Recommendation 3.1**)
- prepare a contract management plan and probity plan. (**Recommendation 4.1**)
- expand the role of the probity auditor so all meetings and communications with tenderers are monitored (**Recommendation 4.3**)

The Department of Treasury and Finance should incorporate into its investment management guidance material, clear articulation that public sector agencies should:

- only enter into alliance procurement arrangements after assessing the appropriateness of these arrangements for the particular procurement exercise and assessing the suitability of an alliance partner, using the Department of Treasury and Finance's alliancing guidelines
- not tender for lump-sum contracts and then change the arrangements to alliance contracts. (**Recommendation 4.2**)

RESPONSE provided by the Secretary, Department of Sustainability and Environment

In regards to the reports considering the Goldfields Superpipe, I note the findings that both Coliban Water and Central Highlands Water managed their respective project components well.

The audit makes recommendations regarding the need to secure Commonwealth funding for the Goldfields Superpipe. Commonwealth funding is correctly a matter for negotiation between the State Government and the Commonwealth Government rather than a water corporation. The State Government has been progressing discussions with the Commonwealth in regard to its funding for the Ballarat section of the Goldfields Superpipe since the federal election last November. Whilst those discussions have been positive, the Commonwealth is not yet able to formalise its pre-election commitment in this regard.

RESPONSE provided by the Managing Director, Coliban Water

I note that your office has made a number of recommendations, which if followed will enhance the development and management of future large capital projects both at Coliban and elsewhere.

The Managing Director of Coliban Water has also provided formal comments on other aspects of this report. These are included in Appendix A.

RESPONSE provided by the Secretary, Department of Treasury and Finance

DTF agrees that a contract management and probity plan should be prepared.

DTF notes that the current policy requires attendance of the probity auditors to the extent necessary to ensure probity of the process. The current policy also promotes flexibility in the procurement process, recognising that a differentiated, tailored strategy should be adopted based on the project's individual requirements. Accordingly, the expansion of the probity auditor's role in this particular project may not be appropriate.

DTF will review its investment management guidance material, with a view to incorporating clear articulation that public sector agencies should:

- *only enter into project alliance procurement arrangements after assessing the appropriateness of these arrangements for the particular procurement exercise and assessing the suitability of an alliance partner, using DTF's alliancing guidelines*
- *not tender for lump-sum contracts and then change the arrangements to alliance contracts, or contracts with predominantly alliance features, after selection of a preferred proponent.*

A range of further comments were also submitted by the Department of Treasury and Finance. These are also included in Appendix A.

RESPONSE provided by the Managing Director, Central Highlands Water

The Managing Director of Central Highlands Water has provided formal comments on aspects of this report. These are also included in Appendix A.

2 Introduction

2.1 The Goldfields Superpipe

Between 2004 and 2007 the Victorian Government announced a number of major projects and plans designed to better secure and manage Victoria's water resources. The projects include components for rural and urban water conservation, and for the expansion of the state's water grid to enable communities to access water from other catchments.

While the water conservation component significantly reduced Victoria's water consumption, the continuing drought in 2006–07 resulted in the lowest inflows in the state's history.

In the Bendigo and Ballarat regions, the low inflows reduced the volume of water held in storages to around 10 per cent of capacity, the lowest levels ever recorded. Bendigo and Ballarat nearly exhausted their drinking water supplies.

The Coliban Region Water Corporation (Coliban) supplies water and related services to rural and urban customers in the greater Bendigo area. The Central Highlands Region Water Corporation (Central Highlands) supplies the greater Ballarat area. Coliban and Central Highlands are Victorian Government owned statutory water corporations and were established under the *Water Act 1989*.

As part of Victoria's water grid initiative, the Department of Sustainability and Environment (DSE), in conjunction with Coliban and Central Highlands, is constructing a new water pipeline called the 'Goldfields Superpipe' (Superpipe) to connect Ballarat and Bendigo to the Goulburn River system. The Superpipe will allow the two water authorities to access more reliable supplies from the Goulburn River. The Superpipe is being funded jointly by the State and Commonwealth Governments and the two authorities.

The Superpipe has three components—a Bendigo pipeline, a Ballarat pipeline and an augmentation of the existing Eppalock to Sandhurst pipeline. The Bendigo pipeline will draw water from the Waranga Western Channel and deliver it to Bendigo via the existing Eppalock to Sandhurst pipeline. It will also supply Lake Eppalock. A separate pipeline (the Ballarat pipeline) is being constructed from Bendigo's Sandhurst Reservoir to provide water to Ballarat.

Procurement and construction of the 46.5km Bendigo pipeline is being managed by Coliban, and procurement and construction of the 87km Ballarat pipeline is being managed by Central Highlands.

Bendigo's current demand for water is approximately 38 000 megalitres per year and Ballarat's is approximately 15 000 megalitres per year. This demand is expected to increase to 54 000 megalitres for Bendigo and 25 000 megalitres for Ballarat by 2055.

The Superpipe will have a capacity of providing 150 megalitres per day and will be capable of providing Bendigo and Ballarat with 20 000 and 18 000 megalitres of water per year respectively.

The final cost of the Bendigo pipeline is expected to be in the order of \$108 million budget. The budget includes \$21 million to increase the pipeline's capacity to provide water to Central Highlands and \$21 million to purchase water.

To address the worsening drought, the initial project completion date of 2009 was brought forward to 1 September 2007. Coliban completed the Bendigo project by the revised date.

The Ballarat project is budgeted to cost \$180 million. Again, because of the worsening drought in 2006, the initial project completion date of 2010–11 was brought forward to August 2008. As at the end of December 2007, the Ballarat pipeline was 60 per cent complete and was on schedule to be completed by the revised delivery date and within budget.

2.2 Audit objective

The objective of the audit was to examine the management of the Goldfields Superpipe project. This included a review of the progress of the project against the established project delivery timelines and budgets and an assessment of the management of project risks.

2.3 Audit scope

The audit included a review of each of the following elements:

- project selection
- project governance arrangements
- project planning and design
- procurement, including initiating the procurement, tender advertising and acceptance, tender evaluation and selection, and management of probity
- project development and construction, including management of scope, risks, time, human resources and communications.

The criteria used by audit to assess each of these elements are based on the Project Management Body of Knowledge (PMBOK) and the Department of Treasury and Finance's Gateway Review guidelines.

The audit was performed in accordance with the Australian auditing standards applicable to performance audits, and included tests and procedures sufficient to enable audit conclusions to be reached.

The total cost of the audit was \$176 000. The cost includes staff time, overheads and printing.

3 Project governance, selection, planning and design

At a glance

Background

Before commencing any major capital project, organisations need to establish appropriate governance arrangements for the project and undertake effective project selection, planning and design activities.

Key findings

Coliban and Central Highlands established appropriate governance arrangements, and the project selection processes of Coliban and Central Highlands were also sound. Coliban and Central Highlands undertook adequate planning and design for their respective projects.

Coliban did not complete a final feasibility study before commencing the Bendigo project. Ordinarily, this would be a significant exception. However, this is mitigated by the imperative created by the drought, the preparation of an interim feasibility study, a satisfactory business case, and the fact that the other short-listed options would not have delivered sufficient water.

Construction of both pipelines commenced before Commonwealth funding was secured. Even in urgent circumstances, prudent project management requires funding sources be secured, or, alternatively, that clear contingency arrangements be put in place.

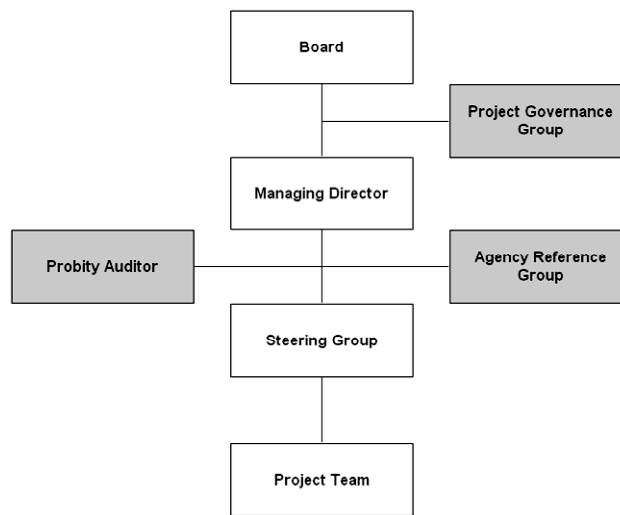
Recommendation

For all major procurement, water authorities should secure project funding, or establish an explicit contingency, prior to commencing procurement. **(Recommendation 3.1)**

3.1 Governance arrangements for the Superpipe

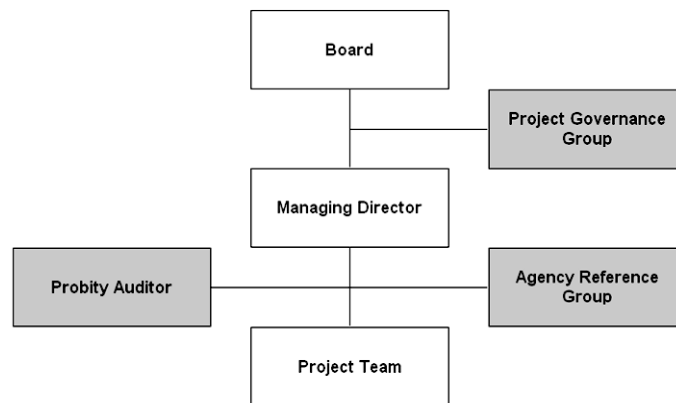
The governance structures for Coliban and Central Highlands are set out in Figures 3A and 3B respectively.

Figure 3A
Coliban's Governance Structure



Source: Coliban Water.

Figure 3B
Central Highlands' Governance Structure



Source: Central Highlands Water.

The responsibilities of the Managing Director (accountable officer) in relation to financial management and reporting are outlined in the *Financial Management Act 1994*.

Each Authority established a project governance framework to comply with the terms of reference set out in the project delivery agreement. These governance frameworks were appropriate and have remained largely unchanged throughout the projects.

Both Coliban and Central Highlands also established appropriate financial delegations for the project.

3.2 Selecting the Goldfields Superpipe project

3.2.1 Identifying the need

The need to source alternative water supplies was first formally identified by Coliban in its September 2004 *Water Security Plan 2055* and by Central Highlands in its 2004 public discussion paper *Securing Ballarat's Future Water Supply*.

3.2.2 Business case

Bendigo

In September 2004 Coliban prepared its *Water Security Plan 2055*, which considered a range of options to secure water supplies for its customers for at least the next 50 years. These options included water saving initiatives, making greater use of recycled water and accessing additional supplies. The alternative water supply options considered included accessing water from the Goulburn supply system via the Waranga Channel.

In 2005 the State Government, in consultation with water authorities, catchment management authorities and local government, developed the *Bendigo Regional Action Plan*. The plan included strategies to reach the objectives outlined in *Our Water Our Future*.

One of the strategies was for Coliban to undertake a feasibility study to assess the options for obtaining additional water supplies from the Goulburn supply system. In March 2006 a consultant engaged by Coliban and the Goulburn-Murray Rural Water Authority commenced work on a feasibility study. The report was due to be finished on 30 June 2006.

In May 2006 Coliban asked the consultant to submit an interim report prior to completing the final feasibility study in June. The request for the interim report was precipitated by the critical water shortage faced by the region. The interim report proposed seven options to increase Coliban's water supplies. Each of the options was assessed against criteria, covering customer satisfaction, environment, finance, governance, community development and water security. The report short-listed three options for further investigation.

Following discussions between the Minister for Water, the Department of Sustainability and Environment (DSE) and Coliban, the Waranga Western Channel to Lake Eppalock option was adopted and Coliban was requested to commence work.

While the feasibility report was not completed, Coliban had concluded that the other two short-listed options would not have delivered the quantities of water required to address the region's needs.

In September 2006 Coliban completed a business case for the project. The business case identified the severe challenges faced by Coliban in meeting the region's water needs and indicated that:

- the project would provide a substantial and immediate increase in Bendigo's water supply, of up to 20 000 megalitres per year
- the pipeline option, together with a range of water recycling and water security projects, needed to be implemented over the next five years to provide a secure system without excessive water restrictions.

The business case identified additional benefits associated with the project, including:

- access to a water source from an adjacent, separate and regulated catchment (Lake Eildon in the Goulburn system), by interlinking both catchments
- access to a substantially larger water market to purchase water, particularly broadening trade between the rural and urban sectors
- the potential ability to continuously transfer water to Coliban's water system
- greater scope to optimise management of all of Coliban's water storages, to maximise stored water.

This business case was approved by Coliban's Board in September 2006.

Ballarat

Central Highlands produced a number of plans and strategies that reviewed the options available to source alternative water supplies for the region. These included:

- *Securing Ballarat's Future Water Supply—February 2005 options paper*
- *Ballarat Regional Action Plan*
- *Central Region Sustainable Water Strategy (Sustainable Water Strategy)*.

These plans and reports assessed options for Ballarat, including:

- new sources of water
- recycling of treated wastewater
- water conservation through supply system improvements
- the transfer of Barwon Water's entitlement held in Lal Lal Reservoir in return for providing an additional water supply for Geelong.

The *Greater Ballarat Water Resources Options 2006* draft report assessed possible new sources of water for Central Highlands. It concluded that the most suitable option was to source water from the Waranga Western Channel.

The 2006 *Central Highlands Business Case* summarised a number of options for new water supplies for Central Highlands, including the Goldfields Superpipe option. The business case recommended the Goldfields Superpipe option because it represented the only practical option for addressing Central Highlands current and longer term water needs. The project was approved by the Board in October 2006.

3.2.3 Community consultation

Coliban and Central Highlands used a number of mechanisms to assess the level of community support and also consult the community about the proposed projects and other options under consideration. These mechanisms are outlined in Figure 3C below. The feedback from these consultation processes indicated a high level of support for both pipelines.

Figure 3C
Strategies used to consult the community

Bendigo	Ballarat
<p>Community Workshops</p> <p>In 2004 Coliban held community workshops to obtain feedback on initiatives to source alternative water supplies.</p> <p>Consultation with the community on the <i>Water Security Plan Options Paper</i> was undertaken in 2005 and this paper was used to develop its <i>WaterPlan 2055</i>.</p>	<p>Community Workshops</p> <p>In 2004 a series of community workshops were held to assist it to develop a long-term water supply plan. Central Highlands conducted community and stakeholder workshops.</p> <p>In October 2004 two focus group discussions designed to capture the views of younger people were conducted.</p>
<p>Community Reference Group</p> <p>In drafting the interim feasibility report, Coliban established a Community Reference Group to identify and address any community concerns with the project.</p>	<p>Community Presentations</p> <p>Central Highlands' community discussion paper <i>Ballarat's Future Water Supply</i> was released in 2004. Its February 2005 Options Paper also contained information to help community members and stakeholders consider future water supply directions. Feedback on this paper was used to develop the <i>Ballarat Regional Action Plan</i> and the <i>Central Regional Sustainable Water Strategy</i>.</p> <p>Central Highlands' staff made 18 presentations on long-term water resource planning issues to service clubs.</p>
<p>Customer Surveys</p> <p>Coliban conducted customer surveys to obtain feedback on proposed initiatives to source alternative water supplies.</p> <p>In its interim feasibility report, Coliban used a customer satisfaction criterion as part of its options analysis.</p>	<p>Customer Surveys</p> <p>Central Highlands surveyed its customers to gauge the level of support for the Goldfields Superpipe and other water supply options.</p>

Source: Coliban and Central Highlands Water.

3.2.4 Approvals to progress to the planning phase

The formal approval process was similar for both projects and involved:

- Board approval (Coliban on 22 June 2006 and Central Highlands on 24 October 2006)
- entering into a Project Delivery Agreement with DSE. This agreement established the governance and funding arrangements for the project and outlined the scope, project management, review and reporting arrangements. Coliban's agreement was signed on 25 July 2006. Central Highlands' agreement has been prepared, but has not been signed as Central Highlands is still to reach agreement with the Commonwealth Government on funding for the project.

3.2.5 Costing and funding the project

Bendigo

The cost of constructing a pump station and a 45km (900mm diameter) pipeline from the Waranga Western Channel to Lake Eppalock was initially estimated to be \$70 million. The project team subsequently developed an initial 'in principle' budget of \$77 million, which was approved by the Board in June 2006.

In preparing the business case, a more detailed assessment of the project requirements was prepared. This assessment indicated that construction of a pipeline capable of producing up to 20 000 megalitres of water per annum would require:

- a booster pump on the existing Eppalock to Sandhurst pipeline
- a significant power upgrade for the pump station.

This increased the budgeted cost from \$77 million to \$88 million.

In September 2006 the Board approved the business case and an increase in the project budget to \$88 million (plus or minus 30 per cent). This provided for a project cost ranging from \$62 million to \$114 million.

Following Central Highlands' decision to connect to the Bendigo pipeline, the project scope was again amended. This involved:

- an increase in the pipe diameter from 900mm to 1050mm
- increasing the capacity of the booster pump from 122 megalitres per day to 160 megalitres per day
- providing an increased electrical power supply to the booster pump station.

These changes increased the project budget to \$109 million. This estimate was approved by the Board in December 2006.

In addition to the capital costs, Coliban budgeted \$10 million to purchase water entitlements from the Murray Goulburn system.

The September 2006 business case intended that the \$88 million project was funded by Coliban and the State and Commonwealth Governments. The estimated contributions were:

- State Government: \$30 million
- Commonwealth Government: \$25 million (National Water Initiative – Water Smart Australia Fund)
- Coliban: \$33 million.

While the State Government funding was provided for in the 2006–07 state budget, Commonwealth funding had not been confirmed when the business case was approved by the Board. In May 2006, the Victorian Minister for Water requested that Coliban commence the project.

The \$21 million in additional costs, resulting from increasing the capacity of the pipeline to enable water to be supplied to Ballarat, was funded by Central Highlands. The water entitlements needed for the project were to be funded by both authorities.

Coliban estimated that the project would result in customer tariffs increasing on average by around 5 per cent per annum for three years following the completion of the project.

Coliban assessed the impact on its customers in the event that Commonwealth or State funding was not received. This modelling indicated that if Commonwealth funding was not received, tariffs would need to increase by 7 per cent per annum for three years (i.e., an additional 2 per cent).

Coliban also assessed the impact on its borrowings and its financial viability in the event that Commonwealth and State funding were not received.

Coliban told audit that the funding contingency was secured before the project was commenced, and in particular that ‘the relevant stakeholders, particularly DTF through the Financial Accommodation Approval process, were locked in’. While there is evidence of discussion between Coliban and DTF, it would have been better practice to have documented any contingency explicitly and transparently.

Ballarat

Central Highlands’ Ballarat pipeline business case included a capital cost estimate for the project of \$159 million. The cost consisted of:

- \$27 million to ‘upsized’ the Coliban pipeline from Waranga to Sandhurst (amount paid by Central Highlands to Coliban to increase the capacity of the Coliban pipeline so Central Highlands could also access water through the pipeline)
- \$22 million to upgrade the Lake Eppalock to Sandhurst pipeline
- \$110 million for the construction of the Sandhurst to Whiteswan pipeline.

The cost of purchasing the 5 000 megalitres of water entitlements required for the project was initially costed at \$6.5 million. This brought the total project cost to \$165.5 million.

In October 2006 the Board approved a budget for the project of \$180 million. The change in the budget resulted from a \$14.5 million increase in the cost of water for the project. This increase was due to a doubling of the amount of water required and the increasing price of the entitlements.

The Ballarat pipeline budget proposed that the \$180 million project would be jointly funded by:

- Commonwealth Government: \$90 million
- State Government: \$71 million
- Central Highlands: \$19 million.

While the State Government funding was provided for in the 2006–07 State budget, the project commenced before the Commonwealth funding was secured at the request of the Minister for Water because of the imminent prospect of Ballarat running out of water.

Central Highlands estimated the extent to which the project would affect customer tariffs and the Authority's debt if the project went ahead as planned. It also evaluated the options available to it to fund the project, should the Commonwealth funding not be received. Central Highlands estimated that, without Commonwealth funding, its debt was likely to increase above \$250 million and customer tariffs were likely to increase by 5 per cent for the next three years. If this were the case, it was expected to breach the Authority's financial viability targets set by the Essential Services Commission.

If Central Highlands were to fund the entire cost of the project, the Authority estimated customer tariff increases of around 15.8 per cent for five years would be required. This would be substantially higher than the price increase forecast under its 2008 Water Plan of 11.4 per cent.

3.3 Conclusion

Coliban and Central Highlands established appropriate governance arrangements, and their project selection processes were also sound. Both authorities undertook adequate planning and design for their respective projects.

Coliban did not complete a final feasibility study before commencing the Bendigo project. Ordinarily, this would be a significant exception. However, this is mitigated by the imperatives created by the drought, the preparation of an interim feasibility study, a satisfactory business case, and the fact that the other short-listed options would not have delivered sufficient water.

While State Government funding had been committed for the project, Commonwealth funding had not been secured before either component of the pipeline had commenced. This created a risk for the two authorities and the State Government. Both Authorities assessed the impact of not receiving the Commonwealth funding on their customer tariffs and their viability. If the funding was not received, both authorities would have had to find alternative sources of funding. An increase in their levels of debt and financing costs, and a concomitant increase in customer tariffs, were identified as alternative sources of funding, however the impact on the Authorities and their customers of the proposed increase in debt and tariffs were not endorsed by the relevant agencies including the Department of Treasury and Finance.

It is recognised the worsening drought imposed imperatives on the projects, and that the Minister for Water had requested the two authorities to commence the projects.

Nevertheless, even in urgent circumstances, prudent project management requires that funding sources be secured, or, alternatively, that clear contingency arrangements be put in place.

Recommendation

- 3.1 For all major procurements, water authorities should secure project funding, or establish an explicit contingency, prior to commencing procurement.
-

4 Procurement stage

At a glance

Background

Where a significant component of a project is to be provided by external parties, sound procurement planning and management is crucial to effective project management.

Key findings

The Bendigo and Ballarat pipeline procurement processes were generally well planned and managed. Coliban and Central Highlands:

- developed procurement strategies to meet the tight timeframes, using the information gained from discussions with prospective tenderers and advice from consultants
- identified and assessed risks associated with the tender and established appropriate procurement processes.

Coliban's conversion of a standard procurement contract into an alliance agreement exposed the agency to higher risk and costs and weakened its bargaining position. Consequently, Coliban is likely to have paid more for the contracted works than it would have paid, had the alliance agreement been formed as part of a normal alliance process.

Also Coliban did not prepare a specific probity or contract management plan for the project.

Coliban's and Central Highlands' probity auditors did not attend all meetings with tenderers.

Central Highlands' decision to purchase pipe directly from pipe manufacturers and the strategy adopted to engage construction contractors, resulted in it accepting the project supply risk and a large part of the construction risk. While this decision was driven by Central Highlands' need to complete the pipeline as quickly as possible, it exposed the Authority to a higher level of risk than would have been the case had another procurement strategy been adopted. To date, this calculated risk has had no negative financial or other impacts.

At a glance - *continued*

Key recommendations

- For all major procurements, water authorities should prepare a contract management plan and probity plan. **(Recommendation 4.1)**
- The Department of Treasury and Finance should incorporate into its investment management guidance materials, clear articulation that public sector agencies should:
 - only enter into alliance procurement arrangements after assessing the appropriateness of these arrangements for the particular procurement exercise and assessing the suitability of an alliance partner, using the Department of Treasury and Finance's alliancing guidelines
 - not tender for lump-sum contracts and then change the arrangements to alliance contracts. **(Recommendation 4.2)**
- For major procurements water authorities should expand the role of the probity auditor so all meetings and communications with tenderers are monitored. **(Recommendation 4.3)**

4.1 Bendigo

4.1.1 Selecting the procurement method

In developing its procurement strategy, Coliban considered a number of alternatives including:

- a public private partnership (PPP)
- a design and construct contract
- an alliance agreement
- use of separate contracts for project design, construction and materials supply.

Coliban recognised that, while greater levels of risk transfer would be possible with a PPP approach, and, to a lesser extent, with a design and construct contract or alliance, the lengthy establishment time for these approaches would mean that its scheduled timeframes could not be met. Specifically, an alliance model was rejected at that time because this option would not have allowed the project to be finished by the proposed completion date, due to the amount of time required to establish a target cost for the project. As a result, Coliban decided to use its engineering consultant to design the project, and to separately tender for the pipe supply and construction works.

This strategy had a number of advantages:

- it allowed the construction of the pipeline to be tendered at the same time the pipeline was being designed
- it separated the project design, construction of the pipeline and purchase of materials, enabled Coliban to submit planning application approvals without having to wait until a construction contractor was engaged, and enabled Coliban to purchase the required materials well in advance of the construction contractors needs
- it provided access to a greater resource pool by enabling smaller contractors, who were not capable of meeting Coliban's requirements for a large design, supply and construct contract, to tender.

In developing its procurement approach, the project team considered the present work loads and capacity constraints faced by tenderers. This was important due to the significant involvement of pipe suppliers and contractors in other pipeline projects at the time the project was tendered.

4.1.2 Contract management plan

Coliban's Project Management Manual requires the preparation of a Contract Management Plan for contracts over \$75 000 in value and more than three months in duration. The manual requires the following information to be included in the plan:

- a work program
- an outline of the project reporting processes
- inspections of work undertaken
- auditing of the contractor's management system (if required)

- details of the contractual, occupational health and safety and environmental management issues relating to the project.

While a Contract Management Plan was not created for the Bendigo pipeline, most of these elements were included in other documents created for the project or in general procedures developed for the management of Coliban projects.

4.1.3 Establishing a probity framework

Due to the number of tenders conducted by Coliban, it has established a generic probity plan for its major procurements (over \$100 000). The plan covers the following aspects of procurement probity:

- probity principles
- role and responsibilities of the probity auditor
- probity tasks and steps
- conflicts of interest
- information management, including security and confidentiality of information
- communication with tenderers
- guidelines to assist its staff to manage probity issues
- record keeping.

The plan includes a checklist of 40 probity requirements. The plan provides for the project team or an external party to sign and date each requirement to certify Coliban's compliance with the plan. Completion of the checklist provides a useful control to ensure all probity requirements have been met.

Coliban did not prepare a specific probity plan for the procurement. Nor did it complete the checklist included in the generic plan. Nonetheless, audit established that most of the requirements outlined in the generic probity plan were adhered to by Coliban.

Role of the probity auditor

In a major tender the role of the probity adviser is to establish and manage the probity approach and advise the tendering authority on probity issues. The role of the probity auditor is to independently review and provide assurance on the probity of the tender process.

In Coliban's procurement process for the Bendigo pipeline, the roles of the probity adviser and probity auditor were performed by the same organisation. While combining the roles may benefit the tendering authority through cost savings and efficiencies, having a separate probity auditor role provides a higher level of assurance about the integrity of the tender process. Combining the roles serves to confuse accountabilities. Audit acknowledges that although this was not a requirement it is considered good practice to divide the probity auditor and adviser roles.

4.1.4 The procurement process

Separate tenders were conducted for the supply of materials, project services and construction of the pipeline.

Tender for services agreement

A public tender was advertised on 4 and 7 October 2006 to engage two contractors on a services agreement. The tender required them to:

- assist Coliban's engineering consultant to finalise the detailed design of the pipeline
- attend a number of value engineering workshops
- prepare detailed construction programs, executions plan and industrial relations strategies
- prepare a fixed price tender for the pipeline construction contract.

The tender closed on 24 October 2006 with Coliban receiving ten tenders from pipeline construction contractors. These contractors were then assessed by the evaluation team against the predetermined selection criteria. From this process five tenders were then short-listed with one of these short-listed tenderers subsequently withdrawing its tender.

Interviews and a further tender evaluation were then undertaken on the four short-listed tenderers. From this process, two construction companies were awarded the services agreement contracts.

Tender for pipe materials

Coliban advertised its pipe supply tender in both national and local press on 30 August and 2 September 2006. Contractors responding to the advertisement were provided with the tender documentation and a 'notification to tenderers' was issued on 7 September 2006.

When tenders closed on 12 September 2006, three tenders were received. Following a detailed tender assessment, the preferred tenderer was selected. This tender:

- met the tender specifications
- had the highest overall rating for demonstrated satisfaction of the tender assessment criteria
- quoted the lowest cost for the project.

Following completion of the assessment process, Coliban's engineering consultant held discussions with the preferred tenderer to:

- clarify the commercial conditions of the contract and technical aspects of its bid,
- request additional information on the tenderers recent project experience and cash flows
- obtain a detailed program.

These meetings were attended by the Probity Auditor.

The contract was awarded on 17 October 2006. The same process was followed for each of the other supply contracts.

Tender for pipeline construction

On 14 November 2006, the two contractors engaged under the project services agreement were asked to tender for the pipeline construction. Tenders closed on 13 December 2006.

Prior to submitting their tenders, the two companies engaged under the services agreement were required to attend a number of joint and separate project information sessions. These sessions, which were attended by Coliban's engineering consultant and Coliban staff, were held to clarify the project requirements and proposed construction process.

Both firms submitted a tender and these tenders were assessed by the evaluation team against the selection criteria. Assessments of the tenders were carried out by the engineering consultant in conjunction with the Coliban project team in accordance with the approved evaluation criteria and the Association of Consulting Engineers Australia guidelines.

As both companies were assessed as capable of meeting the tender requirements, the selection of the preferred tender effectively came down to price. The approved tenderer was engaged on 20 December 2006.

4.1.5 Managing changes to the tender process and requirements

Following the awarding of the construction contract, construction of the pipeline began in January 2007.

On 7 March 2007 the contractor indicated to Coliban that:

- the adversarial nature of the contractual arrangements and the manner in which Coliban's engineering consultant was managing the project was delaying the project
- continuing with these arrangements would result in the project failing to meet its completion date
- there was little incentive for it to deliver the project within the tight timeframes required by the contract.

The contractor proposed that these problems could be overcome by terminating the construction contract (lump sum) and entering into an alliance agreement (target cost contract). The contractor's concerns were discussed with Coliban on 16 March 2007 where the contractor offered to use the existing tendered contract price as the basis for establishing a target cost for the project.

The project team identified a number of potential changes to address problems associated with the existing contractual arrangements. The following options were considered:

- staying with the existing contract
- providing additional funds to the contractor to accelerate the completion of the project
- providing additional funds to the contractor to accelerate the completion of the project and offer the contractor an early completion bonus of \$1 million
- moving to an alliance agreement, which included a bonus of \$1 million for completing the project by 1 September 2007.

The cost, benefits and risks of each of these options were assessed and this assessment, along with a recommendation to move to an alliance was presented to the Board on 3 May 2007.

The project team considered the project would not be completed on time if Coliban continued with the existing contract.

On 30 April 2007 in anticipation of the move to an alliance, Coliban engaged a consultant to hold a one day workshop for internal and external staff working on the project to 'generate aligned leadership and direction for the alliance.'

The Board accepted the recommendation of the project team and determined that:

- the existing contract with the contractor be terminated
- the Authority enter into an alliance with the contractor for the construction of the pipeline
- the contractor be paid a \$1 million bonus if the project is completed by the due date.

Coliban indicated that the new arrangement represented an amendment to the original contract, as the nature and scope of the works had not changed. In May 2007, four months into the contract period with the works well advanced, the Authority entered into an alliance agreement with the contractor.

The alliance arrangement proposed a target cost of \$35.2 million, plus a \$1 million bonus if the pipeline was completed by 1 September 2007. This amount was \$6.3 million higher than the contract cost initially established in the tender process. Figure 4A outlines how the target cost was calculated.

The difference comprised the following four elements:

- \$3.1 million for variations under the original contract, agreed to by the Authority
- \$2.3 million comprising (\$1.3 million) acceleration costs and \$1 million incentive to complete the project by September 2007
- \$1.3 million to cover additional design and other costs
- \$0.4 million risk and opportunity discount.

In assessing alternatives to complete the pipeline by 1 September 2007, Coliban estimated that if it had stayed with the original contract it would have had to pay an additional \$6.6 million to complete the project by the due date, comprising:

- \$5.3 million, for contract variations and acceleration costs
- \$1.3 million for additional design and other costs.

Accordingly, the Authority effectively paid \$2.3 million above the original contract price to ensure it achieved its objective of completing the pipeline by 1 September 2007.

Figure 4A
Calculation of target cost

Component	Cost \$million
Original contract cost (Australian Standard contract)	29.9
Variations	3.1
Acceleration costs	1.3
Additional design and other costs	1.3
Risk and opportunity discount	(0.4)
Target cost	35.2
Incentive	1.0
Total	36.2

Source: Coliban Water.

While project alliances can provide significant benefits, there are also issues and risks associated with this form of procurement. Establishing an effective project alliance involves a number of processes:

- assessing whether an alliance is the best method of procuring the required products and services
- establishing an alliance framework
- selecting an alliance partner
- determining the project target cost, risk and benefit sharing arrangements.

The Department of Treasury and Finance's (DTF) *Project Alliancing Practitioners' Guide April 2006* provides guidance to public agencies on the use of alliances. The guidelines indicate that project alliancing should generally only be considered in the delivery of complex, high risk infrastructure projects, where risks are unpredictable and best managed collectively. Situations where an alliance would be suitable include where there are:

- numerous complex and/or unpredictable risks
- complex stakeholder issues
- complex external threats or opportunities, that can only be managed collectively
- very tight timelines (driven by project risk rather than organisational capability)
- output specifications which cannot be clearly defined upfront.

Construction of new, and replacement of old, water pipelines is an activity regularly undertaken by water authorities. Compared with many other projects, the processes involved were not complex, and the specifications were relatively easy to define.

During the development of the business case and the procurement strategy, Coliban, did consider an alliance approach, however, due to the time required to negotiate a target cost, the alliance was not considered further. A detailed assessment of whether the project was suitable for an alliance was not undertaken.

Consequently, Coliban moved to an alliance agreement, without first:

- establishing an alliance framework
- conducting a process to select an alliance partner (this is a distinctly different process than used to select a contractor under a standard contractual arrangement)
- undertaking the tailored process recommended in the Department of Treasury and Finance's guidelines to determine the project target cost, risk and benefit sharing arrangements.

The alliance agreement contained the key features outlined in the guidelines, except for:

- a specific 'no partnership/joint venture' clause
- drafting the contract in the third person.

Coliban's conversion of a standard procurement contract into an alliance agreement exposed the agency to higher risk and costs because:

- the assessment of alliance partners involves a distinctly different process and focus from the assessment of providers under standard procurement contracts
- moving to an alliance agreement without the potential competitive tension from other bidders heightens the prospect of diminished value for money, in terms of price and risk allocation.

4.1.6 Probity

Communicating with tenderers

Coliban's generic probity plan outlined the communications protocols to be followed by staff when communicating with tenderers. It required the Steering Committee to establish internal processes to control and monitor communications.

During the procurement process, Coliban had a number of different interactions with tenderers, including information sessions and clarification and negotiation meetings. During the meetings, Coliban followed its communications protocols.

Tender for project services agreement

For the project services agreement, interviews were conducted with the four short-listed tenderers. A list of key questions were established prior to the meeting. The names of the participants were recorded by Coliban's engineering consultant in the meeting minutes and the duration of the interviews were approximately the same.

Interviews were attended by the consultant, Coliban staff and Coliban's commercial adviser. The meetings were not attended by the probity auditor.

Tender for pipe supply

The engineering consultant interviewed the preferred tenderer for the pipe supply contract. A list of questions was prepared prior to this meeting, which focused on clarifying the commercial conditions of the contract and technical aspects of its tender. The consultant also requested a detailed work program and additional information on the company's recent project experience and cash flows.

The names of those who attended the meeting were recorded in the meeting minutes and a summary of the discussion was provided in the tender report.

Neither Coliban staff nor the probity auditor attended this meeting.

Tender for pipeline construction

Prior to submitting their tenders, the two short-listed tenderers attended a number of joint and separate project information sessions. These sessions contained no individual commercial benefit to the tenderers.

The sessions were attended by Coliban staff and its engineering consultant. Minutes were taken and the names of attendees recorded. A tender report was sent to the Steering Committee outlining this process.

Documenting communications

The probity plan outlined requirements for the documentation of communications with tenderers. Coliban documented its communications with tenderers in meeting minutes. In some cases these minutes were included in the tender reports.

Independent monitoring of communications

The probity auditor was present at the closing of the tenders, but did not attend meetings, briefings, and interviews or review the correspondence between tenderers and Coliban.

4.2 Conclusion

The Bendigo section of the pipeline procurement processes was generally well planned and managed. Coliban:

- developed procurement strategies to meet the tight timeframes, using the information gained from discussions with prospective tenderers and advice from consultants
- identified and assessed risks associated with the tender
- established appropriate procurement processes.

Coliban's conversion of a standard procurement contract into an alliance agreement exposed the agency to higher risk and costs because:

- the assessment of alliance partners involves a materially different process and focus from the assessment of providers under standard procurement contracts
- moving to an alliance agreement without the competitive tension from other bidders heightens the prospect of diminished value for money, in terms of price and risk allocation.

As a result of the reduced risk to the contractor in alliance agreements, contractors are normally willing to accept a lower price for a target cost contract than a lump sum contract. Coliban's decision to enter into an alliance agreement with the contractor who had been selected through a standard tender, combined with its need to have the project completed by 1 September 2007, weakened its bargaining position. Consequently, Coliban is likely to have paid more for the contracted works than it would have paid, had the alliance agreement been formed as part of a normal alliance process.

Due to time constraints, Coliban did not develop a contract management plan or a probity plan for the procurement. These plans were required by its internal procedures. Although the key elements of these plans were prepared in other documentation, better practice would have seen Coliban develop these dedicated plans. In this instance, there is no indication that the absence of the plans undermined the integrity of the procurement.

Coliban's probity auditor did not attend all meetings with tenderers. Accordingly the Authority cannot be assured as to the overall integrity of the process.

Recommendations

- 4.1 For major procurements water authorities should prepare a contract management plan and probity plan
- 4.2 The Department of Treasury and Finance should incorporate into its investment management guidance materials, clear articulation that public sector agencies should:

- only enter into alliance procurement arrangements after assessing the appropriateness of these arrangements for the particular procurement exercise and assessing the suitability of an alliance partner, using the Department of Treasury and Finance's alliancing guidelines
- not tender for lump-sum contracts and then change the arrangements to alliance contracts.

4.3 Ballarat

4.3.1 Selecting the procurement approach

In developing its procurement strategy, Central Highlands considered and assessed several alternative contractual arrangements for the construction of the pipeline. These alternative arrangements are outlined in Figure 4B.

Figure 4B
Alternatives considered for the construction of the pipeline

Contractual arrangement	Central Highlands' evaluation of the arrangement
Private/Public Partnership (PPP)	Procurement as a PPP under a Partnerships Victoria model was not considered appropriate for the following reasons: <ul style="list-style-type: none"> • a PPP would have provided limited value, as Central Highlands had the core knowledge and skills required to construct and operate a water pipeline • neither the construction nor the operation of the pipeline involved a level of complexity or scale that would warrant, or benefit from, the participation of a private sector constructor and operator • involvement of the private sector through a PPP was unlikely to deliver enhanced value for money through risk transfer or innovation nor was there any potential for asset use beyond what Central Highlands could provide • the State and Commonwealth Governments had committed a large component of the funding required for the project and there was no need to access funds through a private sector participant.
Design of the pipeline by Central Highlands and tender for the pipeline construction	This alternative was not considered appropriate due to the tight project timeline. Under this approach the tender could not have been put to the market until the design was at least 85 per cent complete, which was unlikely to have occurred until March/April 2007. Once put to the market the tender response and evaluation process would take at least two months. This would have prevented the commencement of pipeline construction until at least June/July 2007.
Design, Build and Operate (DBO)	Central Highlands decided that there was no benefit to be gained from a private sector operator. Therefore this alternative was not an option.
Design, Build, Finance and Operate (DBFO)	Not considered appropriate for the reasons discussed above (DBO) and due to funding already being obtained.

Figure 4B
Alternatives considered for the construction of the pipeline - *continued*

Contractual arrangement	Central Highlands' evaluation of the arrangement
Alliance/Partnering	<p>Whilst an alliance/partnering strategy may have provided some benefits to Central Highlands, it would have imposed a significant administrative burden on management and may have increased the overall cost of delivering the project.</p> <p>Central Highlands considered that the key project risks could be effectively addressed through alternative strategies. The additional cost and inherent uncertainties of alliance/partnership procurement were not considered warranted.</p>
<p>Engaging consultants to design the pipeline.</p> <p>Tendering for the supply of pipes and associated materials.</p> <p>Tendering for contractors to construct the pipeline under the management of Central Highlands and paid on an agreed schedule of rates.</p>	<p>This approach was preferred by Central Highlands as:</p> <ul style="list-style-type: none"> • contractors could be engaged and construction of the pipeline could begin more quickly than under the other options • cost savings were possible due to Central Highlands not having to engage a head contractor • it gave Central Highlands greater control over the construction works to meet the required timelines.

Source: Central Highlands Water

Central Highlands' procurement approach guaranteed construction contractors a minimum amount of work provided they committed to being available either during the entire construction period or an agreed part of the construction period. As contractors were allocated works, the relevant scheduled rates were applied or, if different scenarios were encountered or predicted, modified rates were agreed. Incentives were offered to reward contractors for early delivery of project milestones.

The approach differed from that normally adopted by Central Highlands for infrastructure projects. Under Central Highlands' normal approach, the contractor would procure all the materials and fittings for the job and effectively accept the quantity variation risk.

Central Highlands recognised that its procurement strategy resulted in it accepting the project supply risk and the majority of the construction risk. However, it considered that the imperative of meeting the projects timelines outweighed the commercial and administrative benefits of transferring risk.

Following feedback from potential suppliers and the Department of Treasury and Finance's Gateway Review of the project, Central Highlands decided to reconsider its procurement strategy and subsequently adopted a more traditional approach, which involved a lump sum contract with a schedule of rates to manage variation risks from nominated quantities.

Central Highlands' approach resulted in it accepting the following risks:

- additional costs where the pipeline length required was greater than included in the contract due to the contractor striking rock or encountering other adverse conditions

- supply of pipes and fittings and creation of stock piles
- securing site access at nominated contractor sites
- planning approvals and significant permits
- agency negotiation (VicTrack, VicRoads, Councils)
- land owner contact and negotiations.

On the other hand, this procurement strategy allowed smaller contractors, who would not normally have had the capability to tender for this type of project, to bid for work on the pipeline.

In developing procurement approaches, tendering authorities identify procurement risks and allocate these risks to the party best able to manage them. In government infrastructure construction tenders this usually results in:

- the allocation of supply risk to the tenderer (tenderer provides both materials and construction services)
- setting a fixed contract price for the work tendered, through the tender process, which is binding on the authority and contractors.

Central Highlands' decision to purchase pipe directly from pipe manufacturers and the strategy adopted to engage construction contractors, resulted in it accepting the project supply risk and a large part of the construction risk. While this decision was driven by Central Highlands' need to complete the pipeline as quickly as possible, it exposed the Authority to a higher level of risk than would have been the case had another procurement strategy been adopted. To date, this calculated risk has had no negative financial or other impacts.

4.3.2 Procurement plan and probity framework

While no specific plan for the procurement was prepared, the Central Highlands Tendering and Contract Management Procedures Manual outlined the processes and requirements for the tender process. Most of the information normally found in a procurement plan was contained in the procurement strategy, probity plan and other Central Highlands documents.

The probity auditor prepared a probity plan for the procurement, to ensure the integrity of the process, and assist Central Highlands to identify and manage probity issues.

The plan outlined the role of the probity adviser and included:

- controls to assist Central Highlands staff to maintain the security and confidentiality of information
- guidance on the management of conflicts of interest
- a communications protocol
- guidance on protecting proprietary information.

As with Coliban's pipeline procurement, the roles of the probity adviser and probity auditor in the Central Highlands procurement process were performed by the same organisation. Audit acknowledges that although this was not a requirement it is considered good practice to separate the probity auditor and adviser roles.

4.3.3 Managing the tender

The procurement process

Central Highlands separately tendered for the pipeline design, pipeline construction and purchase of materials.

Technical services and pipeline design

On 20 October 2006 four consultants were asked to submit tenders for the project management and tender design consultancy.

When the submissions were evaluated, one consultant was eliminated because it lacked Australian experience. Another was eliminated because it was already committed to other projects. The preferred consultant was selected for its superior financial and technical capability and was appointed on 28 November 2007.

After completing the evaluation process, Central Highlands offered to reimburse the unsuccessful consultants for the costs incurred by them in developing their tenders. One consultant accepted this offer.

Pipeline construction (Northern and Southern)

The initial tender for the pipeline construction enabled contractors to separately tender for the northern, southern or both sections of the pipeline.

Central Highlands advertised for interested contractors to submit a registration of interest for the construction of the pipeline. The 16 contractors submitting registrations of interest were initially assessed against the selection criteria. Ten of these contractors were interviewed to assess their broad capabilities and to test the market's response to various procurement strategies. These contractors were then provided with the tender documents and invited to tender for the construction contract.

A consultant was also engaged to undertake probity checks on the ten companies submitting tenders that were short-listed.

The seven tenders received were assessed by the evaluation team against the evaluation criteria. One tender was eliminated as the price submitted was considered by the evaluation team as being excessive.

The remaining six tenderers received clarification questions prior to meetings with the evaluation panel. Following these meetings, tenderers were given an opportunity to clarify their tenders prior to the completion of the evaluation process.

One of the remaining six tenders was eliminated due to an uncompetitive price, an underdeveloped tender and non-conformance with tender requirements.

A detailed assessment was undertaken on the remaining five tenders. At the end of this process the evaluation team recommended that the Authority separately tender the north and south sections of the pipeline as:

- it considered that engaging one tenderer to construct the entire pipeline created a risk that the pipeline may not be completed on time
- only one tenderer was considered capable of delivering the entire pipeline in the proposed timeline and the price submitted by this tenderer was uncompetitive when compared to the cost of engaging separate tenders for each section.

Following the assessment process, preferred tenders were selected for the northern and southern sections of the pipeline. The tenders selected had the highest overall rating for their section of the pipeline and provided the lowest and second lowest price respectively.

The contracts for construction of the northern and southern pipelines were awarded on 13 June 2007.

The evaluation team had some concern regarding the ability of the preferred tenderer, selected for the southern section of the pipeline to complete the work in the required timeframe. This risk was managed by:

- dividing the contract into two components
- including a contractual clause, that allowed Central Highlands to re-tender part of the contract if the contractor failed to meet the pipe-laying milestone rate set in the contract.

Pipeline construction (Central)

Central Highlands advised the contractor that it was going to re-tender part of the contracted work, when the contractor could not meet the timelines specified in the contract.

On 12 October 2007 six of the contractors submitting tenders for the original construction contract (including the contractor engaged to construct the northern section of the pipeline) were advised that Central Highlands would be calling for tenders. A request for tender was issued to five contractors (one contractor decided not to submit a tender).

Following an evaluation of the tenders, one tender was eliminated on price and the remaining four tenders were subject to further assessment and evaluation.

While all four tenders received were assessed as capable of undertaking the proposed works, the contract was awarded to the contractor engaged to construct the northern section of the pipeline. This contractor tendered the lowest price and offered more equipment. Engagement of this contractor was also attractive to Central Highlands as it did not have to engage an additional party and the contractor:

- had its equipment on site
- already had an environmental management plan approved by DSE
- understood the stakeholder issues.

The contract was awarded on 13 November 2007.

Supply of pipes

On 8 November 2007 Central Highlands issued a registration of interest for the supply of pipes and fittings. Ten organisations registered their interest.

After receiving the registrations of interest, companies were evaluated against predetermined selection criteria, interviewed and asked a series of standard questions. These meetings were used to assess the availability and interest of contractors and to allow them to respond to the proposed terms and conditions to be included in the construction contract.

One of the four tenders received was eliminated as it did not submit a conforming tender and another eliminated on price. The two short-listed tenders were interviewed and further evaluated. Following this process a preferred tender was selected. This tender received the highest overall rating and offered the lowest cost. The contractor was also assessed as more likely to achieve the project timelines than the other contractor.

4.3.4 Managing changes to the tender process and requirements

During its procurement process Central Highlands awarded separate pipe laying contracts for the northern and southern sections of the pipeline. This decision was part of its broader strategy to construct the pipeline within the required timeline.

In September 2007, prior to the completion of the contracted work on the southern section of the pipeline, the pipe laying contractor informed Central Highlands that the firm was unable to meet the critical pipe laying milestones outlined in the contract. The contractor agreed to Central Highlands re-tendering a separable portion of the route following discussions about its slower rate of progress.

In these circumstances, the contract allowed Central Highlands to re-tender the separable portions of the work.

The incomplete work on the southern section of the pipeline was successfully re-tendered and the contractor constructing the northern section of the pipeline was engaged to undertake this work. This was consistent with the conditions included in the original contract.

4.3.5 Probity

Managing conflicts of interest

At the commencement of the project, the Project Director wrote to all relevant staff and contractors, advising them of the requirements outlined in the probity plan and seeking an assurance that no conflicts of interest existed. Conflict of interest declarations were signed and documented appropriately.

Central Highlands identified a conflict of interest for several tenders. This conflict arose because Central Highlands' engineering consultant, who was assisting with the tender evaluation, was owned by a firm that was likely to tender for the supply of pipes, valves and other materials.

Central Highlands engaged another engineering consultant to replace its original consultant.

The probity auditor provided assurance that the change had not damaged the integrity of the tender process.

4.3.6 Independent oversight of communications

While the probity auditor was aware of all meetings held with tenderers, the probity auditor did not attend all of these meetings and did not monitor all communications with tenderers. Accordingly the Authority cannot be assured that sensitive tender information has been controlled and that tenderers have been treated consistently and fairly.

4.4 Conclusion

The Ballarat pipeline procurement processes were generally well planned and managed. Central Highlands:

- developed procurement strategies to meet the tight timeframes, using the information gained from discussions with prospective tenderers and advice from consultants
- identified and assessed risks associated with the tender
- established appropriate procurement processes.

Central Highlands' probity auditor did not attend all meetings with tenderers. Accordingly the Authority cannot be assured as to the overall integrity of the process.

Recommendation

- 4.3 For major procurements water authorities should expand the role of the probity auditor so all meetings and communications with tenderers are monitored.

5 Pipeline construction

At a glance

Background

Once contracts have been established, the project team needs to ensure the assets are constructed according to the tender specifications and are of adequate quality. It is also important for the project team to continue to manage project risks such as cost, time, communications and scope changes.

Key findings

Construction of Coliban and Central Highlands sections of the pipeline are now complete. Both were well managed.

A joint venture agreement between Coliban and Central Highlands has been approved by both Authorities and is awaiting the signature of the Minister for Water.

5.1 Managing construction

Audit found that the construction of the Bendigo pipeline was well managed and that Central Highlands is currently managing the construction of its section well. Both Authorities ensured that the products and services procured to date have been delivered to the quality standards, timeframes and costs specified in the contracts.

5.1.1 Managing cost

Bendigo

Coliban prepared a monthly cost analysis, which provided detail on the expenditure against the budget for major components of the project. The budget and actual costs for the project are outlined in Figure 5A.

Figure 5A
Project budget and actual costs - (\$'000)

Component	Budget costs	Actual Costs to 31 December 2007	Estimated Final Costs
Pumps and pump station	10 598	12 272	12 407
Power supply	5 776	3 486	3 486
Pipes supply	30 500	23 416	23 416
Pipeline construction	36 101	18 067	18 825
Easement Compensation	-	291	1 213
Project management			
- Consultancies	4 500	4 814	5 787
- Coliban costs	525	680	1 024
Sub Total	88 000	63 026	66 158
Water purchases	10 000	21 576	21 576
Total	98 000	84 602	87 734

(a) Figures do not include costs associated with increasing the capacity of the pipeline to enable water to be supplied to Ballarat.

Source: Coliban Water.

As of 31 December 2007 the expected cost of the construction of the pipeline and pump stations was \$66 million, approximately \$22 million below budget. However the cost of purchasing water has already exceeded \$21 million, in excess of \$11 million more than the original budget. The Authority needs to purchase water entitlements in order to access water from the Goulburn system.

The project is now complete.

Ballarat

Central Highlands developed a monthly cost analysis for the project, which divided the expenditure into the following major components:

- project management and development
- Waranga Channel upgrade
- Eppalock to Sandhurst pipeline upgrade
- Sandhurst to White Swan pipeline.
- water purchases.

At the end of 2007 the project was approximately 60 per cent complete and 45 per cent of the budget had been expended. As a result, the project is tracking positively against its budget and is expected to be completed within its \$181 million cost estimate. The budget, percentage of works completed and costs incurred for the major project components are outlined in Figure 5B below.

The project management and development costs were revised in October 2007 to:

- reflect the additional costs associated with increased supervision required during construction as a result of the change in procurement model (\$2 million)
- the decision to increase the depth of the pipeline (\$1.5 million)
- greater landholder consultation (\$1 million)
- increased legal costs due to new legislative requirements under the *Aboriginal Heritage Act 2006* and multiple procurement processes (\$0.5 million).

The Ballarat pipeline was opened in May 2008.

Figure 5B
Project budget, percentage of works completed and costs incurred at the end of 2007

Component	Budget costs (\$ 000)	Percentage of works complete (%)	Actual Costs (\$ 000)
Project Management and Development revised to \$13.9 million	9 028	60	8 189
Waranga Channel Upgrade	20 768	100	20 768
Eppalock to Sandhurst Pipeline Upgrade	16 000	5	507
Sandhurst to White Swan	108 375	60	45 092
Water purchases	27 500	40	7 937
Total	181 671	Approximately 60% complete	82 493 (45% of budget)

Source: Central Highlands Water.

5.1.2 Managing scope changes

Bendigo

To accommodate Central Highlands' decision to connect to the Bendigo pipeline, the project scope had to change to increase the:

- diameter of pipe used from 900mm to 1050mm
- capacity of the booster of the Eppalock pipeline from 122 megalitres per day to 160 megalitres per day
- electrical power supply to the booster pump station.

The cost of this scope change increased Coliban's project budget by \$21 million. This money was paid by Central Highlands. There were no other changes in the project's scope during the construction phase.

Ballarat

Due to the tight timeframe for the project, Central Highlands decided to start construction of the pipeline before the detailed project design was complete. This meant that the actual requirements may have differed from those outlined in the construction contract. To allow for changes to the project, the contract allowed for contract variations where required.

To date, there have been three variations to the pipe laying contract all of which were identified as options in the original contract. These variations, which were not significant, included heat shrinking sleeves, split loose welding collars, fusion coating and sealing of cement lining. Central Highlands agreed to all of these changes in scope.

The process for each of the scope changes involved:

- proposed scope change is raised with superintendent
- superintendent assesses the impact of the proposed change
- for minor changes the superintendent approves and implements change
- for major changes, the Board approves changes.

5.1.3 Managing stakeholders

Bendigo

As part of its services during the project, Coliban established and maintained a project information desk (with a free call facility) and a project website. The website included detailed project information such as the interim feasibility report, the pipeline design route, upcoming consultation activities and successful tenderers.

Coliban also developed a series of regular newsletters and updates which were distributed to members of the local community. These newsletters included information on the progress of the project and its costs and achievement of milestones.

As part of the construction process, Coliban needed to acquire access to land along the pipeline route. The landowners will be compensated for loss of land use during construction and for the acquisition of permanent easements. A valuer was engaged by Coliban to undertake land valuations. Coliban is currently managing the finalisation of the land compensation process with the land valuers and legal advisers.

During the course of the audit, we were advised of a number of landholder concerns relating to the construction of the pipeline, including issues with reinstatement of topsoil, periodic noise from valves, and replacement of fencing.

Ballarat

Central Highlands' stakeholder strategy identified consultation activities to be undertaken and established guidelines and timelines to assist staff in meeting stakeholder needs. To date, these timelines have been met.

Central Highlands also established a specific website for the Superpipe that includes detailed project information such as the pipeline route, the environmental management plan, landowner and community updates.

While the public reaction to this project has been positive, some landowners are currently disputing the level of compensation being offered by Central Highlands under the *Land Acquisition and Compensation Act 1986*.

To date, between 30–40 per cent of landowners have accepted payment but have reserved the right to have their own valuations done. Central Highlands expects that 15 per cent of landowners will dispute the amounts offered. Sufficient resources are available in the project budget to meet these additional costs.

5.2 Joint venture agreement

As the Coliban pipeline is to be used to provide water to both its customers and those of Central Highlands, both Authorities need to reach agreement on the ownership and maintenance of the pipeline and access to the water it will provide.

A joint venture agreement between the two Authorities has been developed to address these issues. The agreement has been approved by Coliban and Central Highlands and is currently awaiting the signature from the Minister for Water.

5.3 Conclusion

The management of the construction of both the Coliban and Central Highlands projects has been well managed.

Appendix A.

Goldfields Superpipe – agency responses

RESPONSE provided by the Managing Director, Coliban Water

Coliban Water welcomes the Auditor-General's review of the Bendigo section of the Goldfields Superpipe and acknowledges the following positive findings:

- *Appropriate governance, project selection, planning and design processes were implemented for the project;*
- *Procurement processes were well planned and managed;*
- *The construction of the pipeline was well managed*

Furthermore, Coliban Water notes that the project was successfully completed within an extremely short timeframe, meeting all of its key targets of time, cost and performance. The project is expected to be in excess of \$20M under budget and to date has delivered over 10000 megalitres of new water to the Coliban System, enabling a slight relaxation in our water restrictions.

In relation to Section 3 of the Audit on the costing and funding of the project, Coliban Water acknowledges that:

- *In ideal circumstances, funding would have been secured prior to commencement.*
- *The project commenced before Commonwealth funding was approved because the critical water shortage in Bendigo required that the project be commenced at that time;*
- *The impact of not receiving Commonwealth funding had been assessed and the alternative option of funding it through increased tariffs had been discussed with the relevant regulatory agencies;*
- *The Minister for Water supported the commencement of the project.*

In relation to Section 4 and Coliban Water's decision to move from an AS2124 Contract to an Alliance Agreement, please note:

- *The move to an Alliance was driven primarily by the need to finish the project to a stage that allowed the transfer of water to Bendigo by 1 September 2007. At the time of changing to the Alliance, there were a range of valid contract claims that would have extended the completion date under the AS2124 Contract well beyond this date and resulted in an increased project cost.*

RESPONSE Provided by the Managing Director, Coliban Water – continued

- *Moving to the Alliance successfully focused the objectives of the Contractor, Designers and all other parties to meet the 1 September target without the protracted contractual arguments that would have resulted from the AS2124 Contract;*
- *When considering changing to an Alliance, Coliban Water fully considered the guidelines proposed in DTF's Project Alliancing Practitioner's Guide and it was considered that the critical timelines and complex status of the existing contract supported the move to an Alliance. It is noted that the development of the Alliance was fast-tracked, due to the current status of the works, however, all of the key features of the Guide were included in the Alliance Agreement;*
- *The Alliance Agreement included a number of risk benefits in favour of Coliban Water that are not part of the standard model outlined in the DTF Guide;*
- *When assessing the move from an AS2124 Contract to an Alliance Agreement, it was estimated that a cost saving in the order of \$0.3M (if the \$1M bonus is included in the Alliance costs) would be achieved by the Alliance. Furthermore, the final Alliance costs are actually expected to be in the order of \$1M less than the agreed TOC (target out-turn cost);*
- *In developing the original TOC, the Contractor forewent any opportunity to claim for variations to the existing AS2124 Contract that had not been identified at the time of signing the Alliance Agreement;*
- *The tendered cost of the other shortlisted bidder was significantly higher than the tendered cost of the Contractor or the agreed TOC, to an extent that the alternative contractor would not have been competitive if they were included in the Alliance discussions;*
- *The comments relating to probity are acknowledged;*
- *Overall the move to an alliance resulted in a better financial position and ensured on time delivery.*

RESPONSE provided by the Managing Director, Central Highlands Water

With regard to the recommendations, Central Highlands Water would like to make the following comments:

Securing funding before commencing the project

If Central Highlands Water (CHW) had acted in accordance with the recommendation to secure funding, then the procurement process would still not have commenced (Federal funding has not yet been received).

At present the Ballarat Water Supply systems is at 8 per cent capacity. We expect to be around 5 to 6 per cent when the Superpipe commences operations.

RESPONSE provided by the Managing Director, Central Highlands Water – continued

A repeat of the 2006 or 2007 inflows in 2008, with the procurement commencing immediately would have resulted in certain failure of the Ballarat Water Supply system. To maintain, and ensure supply continued, for essential services such as hospitals and fire fighting, until the project was delivered in around 18 months, would have meant the rationing of water supply to where all customers would have supply available for limited periods of time during the day. The economic and social impacts on both the Ballarat community and wider region would be catastrophic (as detailed in the business case).

Whilst Federal funding had not been secured prior to the project commencing, it should be noted that once CHW is directed by government to undertake a project, the ESC has no choice but to approve an efficient quantity revenue for CHW to fulfil this obligation through the ESC pricing determination. In this case, the change is material and CHW could have triggered an immediate pricing review. Therefore it could be argued that once a direction is received from the Minister, project funding in some form is assured via the ESC pricing process.

In CHW's view, the real issue is the level of risk that CHW's customers are exposed to in terms of future pricing pathways, with the absence of funding agreements being secured and the community impacts from this pricing risk eventuates.

Expand the role of the probity auditor

Meeting with tenderers, which did not have the Probity Auditor present, occurred after bids were received. These meetings were of a technical nature between Central Highlands Waters' technical consultants and bidders to clarify any bid specific technical issues. The Probity Auditor was fully aware of these meetings prior to them occurring.

Central Highlands Water notes VAGO's comments regarding the separation of the Probity Auditor and Adviser roles. We appreciate that VAGO has clarified in the report that this was not a requirement, but is considered good practice, as is also recommended by the Victorian Government Purchasing Board.

Central Highlands Water advises that we have already modified our procurement processes to separate these roles and are applying this structure in the procurement processes for the Small Town Sewerage Projects and Technical Consultancy Services.

We are also in the process of amending our Capital Works and Tendering Manual to include the separation of these roles as a standard Central Highlands Water procurement requirement for major projects.

RESPONSE provided by the Secretary, Department of Treasury and Finance

Procurement stage

DTF considers that the current policy on the Conduct of Commercial Engagements in relation to probity auditors is consistent with industry best practice and is therefore appropriate. Accordingly, DTF agrees that a contract management and probity plan should be prepared.

DTF notes that the current policy requires attendance of the probity auditors to the extent necessary to ensure probity of the process. The current policy also promotes flexibility in the procurement process, recognising that a differentiated, tailored strategy should be adopted based on the project's individual requirements. Accordingly, the expansion of the probity auditor's role in this particular project may not be appropriate.

Recommendation 3.1

DTF concurs that water authorities should, as matter of principle, secure project funding or establish an explicit contingency prior to commencing procurement. However, as acknowledged in the Auditor-General's report, in this case there were compelling circumstances which called for immediate action by the water authorities to support the health and wellbeing of local communities. The project commenced under the direction of the then Minister for Water in the context of the unprecedented drought conditions, and with the prospect of key regional centres running out of water.

More broadly, DTF has an established corporate planning and reporting framework for Government business enterprises, including the water authorities, to facilitate the central oversight of these enterprises/authorities. Under the Water Act 1989, water authorities are also required to immediately notify the Minister for Water and the Treasurer if they form the opinion that matters have arisen that may prevent or significantly affect achievement of their corporate objectives or financial targets. This provides a robust framework of reporting to ensure that the relevant information on each water authority's financial performance and outlook is available to DTF and the Treasurer in a timely manner, and allows the development of appropriate and timely responses should any significant funding pressures emerge.

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Reports tabled during 2007-08

Report title	Date tabled
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Improving our Schools: Monitoring and Support (2007-08:2)	October 2007
Management of Specific Purpose Funds by Public Health Services (2007-08:3)	October 2007
New Ticketing System Tender (2007-08:4)	October 2007
Public Sector Procurement: Turning Principles into Practice (2007-08:5)	October 2007
Discovering Bendigo Project (2007-08:6)	November 2007
Audits of 2 Major Partnership Victoria Projects (2007-08:7)	November 2007
Parliamentary Appropriations: Output Measures (2007-08:8)	November 2007
Auditor General's Report on the Annual Financial Report of the State of Victoria, 2006-07 (2007-08:9)	November 2007
Funding and Delivery of Two Freeway Upgrade Projects (2007-08:10)	December 2007
Results of Financial Statement Audits for Agencies with 30 June 2007 Balance Dates (2007-08:11)	December 2007
Local Government: Results of the 2006-07 Audits (2007-08:12)	February 2008
Agricultural Research Investment, Monitoring and Review (2007-08:13)	February 2008
Accommodation for People with a Disability (2007-08:14)	March 2008
Records Management in the Victorian Public Sector (2007-08:15)	March 2008
Planning for Water Infrastructure in Victoria (2007-08:16)	April 2008
Delivering HealthSMART—Victoria's whole-of-health ICT strategy (2007-08:17)	April 2008
Victoria's Planning Framework for Land Use and Development (2007-08:18)	May 2008
Planning Permit Application: Assessment Checklist (2007-08:19)	May 2008
Planning Scheme Amendment: Assessment Checklist (2007-08:20)	May 2008
Patient Safety in Public Hospitals (2007-08:21)	May 2008
Project Rosetta (2007-08:22)	May 2008
Results of Audits for Entities with other than 30 June 2007 Balance Dates (2007-08:23)	May 2008
Review of South East Water's Works Alliance Agreement (2007-08:24)	May 2008



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